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**Proceedings
Bengal for**

**tenant-Governor of
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*BENGAL, presiding.
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SALT ACT AMENDMENT.

The HON'BLE MR. BEAUFORT moved for leave to bring in a Bill to amend "The Salt Act, 1864." In doing so he said the draft of the Bill was in the hands of the Members, and he would now only state shortly the reason for introducing it. The necessity for the Bill arose from the introduction of the new Code of Criminal Procedure, which provided a new distribution of the powers of Magistrates. Under the Salt Act the word "Magistrate" meant a person exercising the full powers of a Magistrate, and under the new Code of Criminal Procedure that would be a Magistrate of the first class.

It had been determined that the powers of a Magistrate of the first class should not be vested in all the officers who had under the old Act been vested with full powers; and, as many of the salt cases would go before Magistrates of the second class, it had been deemed proper to extend to such officers the power to inquire into and to try such cases. The object of the Bill was to confer on Magistrates of the second class the same jurisdiction as the present law gives to first class Magistrates.

The opportunity had been taken to provide that the references in the Act to the old Calcutta Police Acts, XIII of 1856 and XL/III of 1860, should be taken to be made to the new Police Act, IV (B.C.) of 1866.

HIS HONOR THE PRESIDENT said he might say in addition to what had fallen from the hon'ble member who introduced the Bill, that it might be also necessary to note that it was not only the redistribution of Magistrates' powers which had rendered this Bill desirable, but that also under the old Act it often happened that Magistrates of the first class were not available in the remote sea-side districts, where offences against the salt laws were generally committed. The offences to be tried were petty; the punishment inflicted was petty, generally nothing more than a small fine. And it would be hard, both upon the witnesses and the parties concerned, that in petty cases of this kind it should be necessary to send all these people to long distances to Cuttack or Midnapore for instance, rather than try the offender on the spot, where a petty fine would in all probability be inflicted. For these reasons HIS HONOR hoped the Council would think it right to allow the Bill to be introduced.

The motion was agreed to.

EMBANKMENTS AND WATER-COURSES.

The HON'BLE MR. SCHALCH said, it would be in the recollection of the Council that a Bill was introduced in December 1870, amend the then existing Act relating to embankments. That Bill was referred to a Select Committee, and was the subject of much consideration and discussion in Committee. The Committee reported in August 1871, when for reasons then stated by his hon'ble friend on the left (Mr. Bernard), the consideration of the Bill was deferred, and the Bill was again submitted for revision to a Select Committee. That Committee submitted a report in August last, shortly before the close of the sittings of the Council; and the Bill as amended and submitted by them was circulated and published for general information. Since then he (MR. SCHALCH) had had the assistance of the hon'ble member opposite (Mr. Beaufort) in going through the provisions of the Bill, and it struck them that a considerable number of alterations and amendments should be made in the Bill. The Council had before them a paper of the alterations and amendments, which were proposed. The amendments seemed very numerous, but he believed that on examination the majority of them would be found to be of a merely verbal character, and such as were calculated to carry out more fully and more clearly the sections of the Bill.

There were, however, one or two of the amendments which did import to a certain extent new principles, and on those he now wished to offer a few remarks. Of those, first came the amendment in line 17 of section 3. The proposal was to enable Collectors, in those cases where the benefit derived from an embankment might be very largely shared by a municipality, to assess a share of the cost of construction and maintenance on the municipality, so that the whole expense might not fall on the zemindars, who might receive in many instances only a very small portion of the benefit derived from the embank-

Statement showing the Fluctuations in the Value of the Exports of the following Articles to Foreign Countries, noticed specially in the Calcutta Customs Annual Statement No. 4 in 1871-72, as compared with those of 1870-71.

Article.	To which place exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.
		Increase.	Decrease.	
Grain and Pulse—				
Rice	United Kingdom ...	2,09,878	The increases and decreases are pretty nearly the same, the latter being in excess of the former by only Rs. 1,04,513, which may be considered a fluctuation in trade, there having been an increase of Rs. 28,41,269 in the exports of 1870-71 as compared with those of the preceding year. It is satisfactory to note the increases in the shipments to Great Britain, Australia, China, and the Persian Gulf. The three first items may have been induced by improved quotations from those countries, but the last is no doubt owing to the famine in Persia. The rice sent in the Burmese ports has been very brisk, and must to some extent have interfered with the market here.
	Persian Gulf ...	6,40,137	.....
	China ...	6,93,971	.....
	West Indies Islands ...	1,89,951	.....
	Australia ...	3,24,453	.....
	Aden ...	1,26,963	.....
	America ...	1,04,448	.....
	Bourbon ...	.....	10,51,542
	Ceylon ...	.....	7,36,507
	Mauritius ...	.....	3,31,811
Trinidad ...	.....	1,69,212	
Other ports ...	43,679	1,15,921		
Total ...	23,53,480	21,38,023		
Deduct increase ...	.....	23,33,480	
Net decrease ...	.....	1,04,513	
Wheat	United Kingdom ...	5,01,124	Prices fell about the beginning of the year and kept low for many months, owing to the market being well supplied, which circumstance no doubt induced large exports to Great Britain and the Mauritius. The total increase is satisfactory, seeing that in the previous year the exports exceeded those of 1869-70 by Rs. 5,87,251.
	Singapore ...	48,198	.....
	Persian Gulf ...	40,870	.....
	Mauritius ...	.....	3,09,365
	Java and Batavia ...	.....	31,925
	France ...	.....	11,117
	Ceylon ...	.....	10,225
	Other ports ...	1,813	13,014	
	Total ...	5,92,005	3,78,976	
	Deduct decrease ...	3,78,976	.....
Net increase ...	2,13,029	.....	
Grain	Mauritius	1,73,482	There does not appear to be any special reason for the decrease shown, except that in the preceding year there was an increase of Rs. 4,55,744 with reference to the shipments in 1869-70.
	Ceylon ...	.....	37,149
	Singapore ...	.....	16,761
	Bourbon ...	.....	12,013
	Other ports ...	1,631	1,761	
	Total ...	1,634	2,41,166	
Deduct increase ...	.....	1,631	
Net decrease ...	.....	2,39,532	
Indigo	United Kingdom	20,02,826	The exportation of indigo being regulated according to the total quantity annually sold at the marts, the increase may be attributed to a good season. The decrease in the shipments to Great Britain is owing to a better market having offered in France on peace being restored to that country, and also to large shipments to the European continent, as shown by the figures of this article.
	Suez ...	.....	2,21,090
	Turkey ...	.....	3,17,311
	Persian Gulf ...	.....	5,37,151
	North America ...	.....	55,115
	Africa ...	.....	41,358
	France ...	31,67,233	.....
	Trieste ...	10,69,990	.....
	Russia ...	3,21,554	.....
	Alexandria ...	2,31,138	.....
	Genoa ...	77,806	.....
	Constantinople ...	60,008	.....
	Bremen ...	46,650	.....
	Other ports ...	21,014	1,011	
Total ...	49,98,393	51,81,859		
Deduct decrease ...	31,81,859	.....	
Net increase ...	18,16,534	.....	
Jute	United Kingdom ...	1,23,03,606	The first paragraph of the above remarks apply also to jute. It will be seen that about four-fifths of the entire increase is under "Great Britain;" and there has been, I believe, a loss of something like 30 lakhs of rupees on the year's operations.
	North America ...	27,93,181	.....
	Bremen ...	1,39,955	.....
	Trieste ...	1,32,709	.....
	France ...	21,583	.....
	Other ports ...	26,121	7,846	
	Total ...	1,51,20,455	7,846	
Deduct decrease ...	7,846	.....	
Net increase ...	1,54,12,609	.....	

Articles.	To which place exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.	
		Increase.	Decrease.		
Lac dye	United Kingdom	1,93,447	<i>Lac Dye and Shell Lac.</i> —The greatest increases took place in the last quarter of 1871-72, owing to a sudden activity in the trade after many months of comparative stagnation.	
	Australia	16,335	.....	
	France	5,414	.....	
	Other ports	12,409	.....	
	Total	2,27,602	.....	
Shell lac	United Kingdom	4,17,700	.....	
	North America	49,943	.....	
	Genoa	16,858	.....	
	France	.....	5,370	
	Other ports	12,818	4,674		
Total	4,95,519	10,044			
Deduct decrease	10,011	.....		
Net increase	4,85,775	.....		
Oil-seed— Linsced	United Kingdom	88,032		The decrease in oil-seeds of all kinds is owing to the high prices maintained during the greater portion of the year in consequence of stocks having become reduced and comparatively short crops.
	France	.....	30,008	
	North America	.....	21,06,404	
	Other ports	14,976	.....	
	Total	1,03,008	21,36,412		
Deduct increase	.....	1,03,008		
Net decrease	.....	23,33,404		
Rape-seed	United Kingdom	.....	40,38,749	
	France	.....	2,45,220	
	Other ports	186	.....	
	Total	186	42,83,969		
	Deduct increase	.....	186	
Net decrease	.....	42,83,783		
Poppy-seed	United Kingdom	.....	6,68,871	
	France	.....	2,43,194	
	Other ports	.....	11,161	
	Total	.....	9,23,226	
	Net decrease	.....	9,23,226	
Teel-seed	United Kingdom	.....	69,379	
	France	.....	8,93,658	
	Other ports	6,600	20,683		
	Total	6,600	9,83,720		
	Deduct increase	.....	6,600	
Net decrease	.....	9,77,120		
Other sorts of seeds	Genoa	1,23,750	.....	
	France	10,753	.....	
	North America	30,739	.....	
	Other ports	21,114	9,757		
	Total	1,86,686	9,757		
Deduct decrease	9,757	.....		
Net increase	1,76,929	.....		
Raw cotton	United Kingdom	1,50,32,815	The increase in the exports of cotton has been steady throughout the year. The report of peace having been declared in France induced several contracts towards the close of 1870-71 "for forward delivery," and subsequently large exports to England took place owing to the Home cotton market having improved	
	France	33,65,684	.....	
	Amsterdam	27,46,295	.....	
	Antwerp	13,20,000	.....	
	Trieste	8,59,279	.....	
	Italy	5,31,574	.....	
	Bremen	.....	2,71,536	
	China	.....	31,21,095	
	Other countries	7,451	5,424		
	Total	2,38,66,098	36,98,055		
Deduct decrease	36,98,055	.....		
Net increase	2,01,68,043	.....		

Articles.	To which plate exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.
		Increase.	Decrease.	
Raw Hides and Skins— Hides	United Kingdom...	19,60,719	High prices in the Home markets induced large shipments, and probably diverted many goods which would otherwise have found their way to the American market.
	France	4,91,222	.....
	Italy	5,22,417	.....
	Trieste	3,29,731	.....
	Antwerp	82,300	.....
	North America .....	.....	3,19,783
	Bremen .....	.....	1,27,513
	Other ports	78,817	65,513	
	Total	31,65,236	5,42,839	
	Deduct decrease	5,12,839	.....
Net increase	29,22,397	.....	
Skins	North America	1,23,118	
	Italy	45,213	.....
	France	11,631	.....
	Other ports	16,770	.....
	Total	1,99,765	.....
Gunny bags	North America	2,80,371	(America.)—The reasons given for the decrease in gunny cloth apply equally to the decrease in bags. Prices in the Straits ports were high in February 1872, and there was a good demand in Australia throughout the year.
	Australia	48,397	.....
	Ceylon	53,865	.....
	Straits Settlement	69,183	.....
	China	20,835	.....
	Other ports	31,739	21,554	
Total	2,21,019	3,01,925		
Deduct Increase .....	.....	2,21,019	
Net decrease .....	.....	77,906	
Gunny cloth	North America	11,36,205	As shown in paragraph 43 of the annual report, the decrease is probably owing to the proportionately larger use of home-made cloth for cotton bales in America in 1871-72 than in the preceding year.
	Other ports .....	.....	12,203
	Total .....	.....	11,48,408
Saltpetro	United Kingdom	2,87,181	The decrease is owing to limited stocks and unfavourable telegrams from London.
	North America .....	.....	1,09,623
	China .....	.....	1,28,527
	France	36,677	.....
	Antwerp	26,292	.....
	Other countries	21,993	22,819	
	Total	81,962	5,48,150	
Deduct increase .....	.....	81,962	
Net decrease .....	.....	4,63,188	
Opium	China	1,18,91,502	A larger number of chests was sold in 1871-72, and the average price per chest obtained was higher than in the preceding year.
	Straits Settlements	19,85,738	.....
	Java and Batavia .....	.....	2,26,400
	Ceylon .....	.....	20,535
	Other countries	10,155	20,615	
	Total	1,38,87,395	2,67,550	
Deduct decrease	2,67,550	.....	
Net increase	1,36,19,845	.....	
Silk, raw	United Kingdom	12,78,961	"The silk buns of the past year have been short crops, and the prices obtained for native silk have been such as to deter shippers from sending it forward." At the commencement of the year the unsettled state of political matters in France, and the near approach of the European silk crops, tended to depress the trade. Subsequently the position of Bengal silk in the home-trade caused considerable anxiety both here and in London, in consequence of the increased disinclination shown by consumers to use it at all.
	France .....	.....	1,86,120
	Alexandria .....	.....	1,11,311
	Italy	3,18,035	.....
	Other countries	1,891	62,175	
	Total	3,20,239	19,39,167	
Deduct increase .....	.....	3,20,239	
Net decrease .....	.....	16,18,928	
Tea	United Kingdom	32,52,339	The exports of tea, like indigo, are regulated by the produce of each season.
	Other countries	89,897	7,276	
	Total	33,42,236	7,276	
	Deduct decrease	7,276	.....
Net increase	33,34,960	.....	

Articles.	To which place exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.
		Increase.	Decrease.	
<i>Manufactures of Wool.</i>				
Shawls	United Kingdom	51,137	Probably owing to renewed activity on the renewal of the trade with France at the close of the war.
	France ..	3,40,126	.....
	Other countries ..	6,171	.....
	Total ..	3,46,297	51,137	
	Deduct decrease ..	51,137	.....
Net increase...	2,95,160	.....	
Other sorts	United Kingdom ..	.....	5,519
	France ..	11,250	.....
	Straits Settlements ..	74,373	.....
	Other countries ..	12,183	30,572	
	Total ..	98,106	36,091	
Deduct decrease ..	36,091	.....	
Net increase...	62,015	.....	
<i>Bullion and Specie.</i>				
Gold	United Kingdom	19,71,405	The decrease in gold is counterbalanced by the increase in silver. The actual decrease is in the remittances on account of Government.
	Java ..	.....	30,000
	Other ports ..	.....	9,804
Total ..	.....	20,11,209	
Silver	Mauritius ..	6,00,000	(Rs. 21,22,232 in exports on account of Government.) (Rs. 22,111 on account of Government.)
	Ceylon ..	8,55,000	.....
	Aden ..	5,00,000	.....
	China ..	25,000	.....
	United Kingdom ..	.....	28,72,168
	Penang ..	.....	40,138
	Other ports ..	.....	26,154
Total ..	19,80,000	29,38,460		
Deduct increase ..	.....	19,80,000	
Net decrease...	.....	9,58,460	
Copper	United Kingdom...	10	The whole on Government account.
	Ceylon ..	1,95,490	.....
	Total ..	1,95,500	.....
Grand total ..	21,75,500	49,49,669		
Deduct increase ..	.....	21,75,500	
Net decrease ..	.....	27,74,169	
<i>"All other Articles."</i>				
Apparel	Straits Settlements	2,06,982	No reliable information obtainable. It is not improbable, however, that the previous year's shipments to the Straits having proved unprofitable, deterred shippers from further speculations.
	Australia ..	.....	10,677
	Mauritius ..	11,559	.....
	China ..	9,840	.....
	Other ports ..	11,264	4,012	
Total ..	35,663	2,21,671		
Deduct increase ..	.....	35,663	
Net decrease ..	.....	1,86,008	
Borax	United Kingdom ..	2,32,457	The increase in value of the exports is owing principally to the enhanced price of the article, and not so much to the increase in quantity exported.
	Straits Settlements ..	.....	14,503
	Other ports ..	742	2,179	
	Total ..	2,33,199	16,682	
Deduct decrease ..	16,682	.....	
Net increase...	2,16,517	.....	

Articles.	To which place exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.	
		Increase.	Decrease.		
<i>"All other Articles"</i> —(Contd.)					
Drugs	United Kingdom...	10,387	The principal increase is in putchuck to China and the Straits, in which ports the price was higher by 3 to 4 dollars than in 1870-71.	
	North America ...	14,182	.....	
	China ...	1,76,487	.....	
	Straits Settlements	32,461	.....	
	Java ...	.....	11,910	
	Mauritius ...	.....	9,358	
	Other ports ...	6,153	3,223		
	Total ...	2,39,670	21,521		
	Deduct decrease ...	21,521		
	Net increase...	2,15,149		
Dyeing and coloring materials	United Kingdom...	49,195	It is not fair to compare the past or any year with 1870-71, for the value of safflower during the last-mentioned period was higher than it has ever been before. The decrease is not in quantity, but in price, caused by low rates and heavy stocks at home, induced in some measure perhaps by the introduction of a new dye ("saffronine") which has somewhat taken the place of safflower, though it is not thought that it will permanently replace it, as the former is not a "fast dye." The fashion for colours for which safflower is used, has also gone out.	
	France ...	.....	74,729	
	North America ...	.....	52,088	
	Straits Settlements	13,891	.....	
	Other ports ...	12,161	18,764		
		Total ...	26,052		1,95,076
	Deduct increase	26,052		
	Net decrease	1,69,024		
Gums	United Kingdom	51,887	Low prices ruled in Europe, and the increase to America was merely the result of speculative shipments.	
	France ...	.....	1,65,697	
	North America ...	79,855	.....	
	Italy ...	13,180	.....	
	Other ports ...	5,673	9		
		Total ...	98,708		2,17,593
	Deduct increase	98,708		
	Net decrease	1,18,885		
India-rubber	United Kingdom...	5,21,279	There was a large increase in the demand in England principally for telegraphic purposes, and a consequent rise in the price there, which led to higher prices and larger supplies here. The falling off in American shipments is probably owing to the fact that the rise in prices here brought the cost of Bengal rubber so near to that of the Central American rubber, that the States manufacturers preferred to use the latter, which is of a superior quality.	
	North America ...	.....	1,07,789	
	Other ports ...	2,522	518		
		Total ...	5,26,801		1,08,307
		Deduct decrease ...	1,08,307	
	Net increase ...	4,18,494		
Metals	United Kingdom...	53,893	The exports to the United Kingdom and America included a larger quantity of old iron for remanufacture than in the previous year, such as old railway chairs, a great deal of which, owing to the high prices ruling at Home, has been sent on freight.	
	North America ...	81,515	.....	
	Mauritius ...	16,779	.....	
	Ceylon ...	.....	35,638	
	Straits Settlements	.....	23,133	
	Other ports ...	17,509	1,618		
		Total ...	1,72,726		60,719
	Deduct decrease ...	60,719	.....	
	Net increase...	1,12,007		
Provisions	Mauritius ...	1,10,732	There was a good demand for ghee and lard in the Mauritius throughout the year, and the price of the latter rose from \$18 in January 1871 to \$22.75 in December of the same year.	
	Straits Settlements	27,720	.....	
	West Indies Islands	.....	18,106	
	Ceylon ...	.....	8,131	
	Other ports ...	11,774	8,316		
		Total ...	1,50,226		34,853
	Deduct decrease ...	34,853	.....	
	Net increase...	1,15,373		

Articles.	To which place exported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.
		Increase.	Decrease.	
"All other Articles." —(Concl'd.)				
Silk piece-goods...	United Kingdom ..	31,815	The increase is owing to a good market for silk piece-goods at home.
	France	38,782	.....
	North America ...	19,357	.....
	Persian Gulf	16,821	.....
	Ceylon ... ..	.....	9,809
	Other ports	16,218	18,883	
	Total	1,22,993	38,692	
	Deduct decrease ...	28,692	
	Net increase	91,301	
Feathers	United Kingdom...	91,781	Higher prices in England. Price for small osprey feathers rose from \$15 to \$25 per oz.
	Other ports	7,097	11,391	
	Total	98,878	11,391	
	Deduct decrease ...	11,391	.....
	Net increase	87,487	
Wax	United Kingdom	23,052	No reliable information obtainable; but as the shipments to the Straits were divided amongst a number of traders, it is to be presumed that they were induced by favourable quotations from these markets.
	China ... ..	.....	18,119
	Java ... ..	.....	26,127
	Straits Settlements	1,49,865	.....
	Other ports	37	8,287	
	Total	1,49,902	75,585	
	Deduct decrease ...	75,585	
	Net increase	71,317	

J. A. CRAWFORD,
Collector of Customs.

CALCUTTA CUSTOM HOUSE,
The 30th October 1872.

Statement showing the fluctuations in the value of the imports of the following articles from British Indian Ports, specially noticed in the Calcutta Customs Annual Statement No. 7 in 1871-72, as compared with those of 1870-71.

Articles.	Whence imported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.	
		Increase.	Decrease.		
IMPORTS.					
Raw cotton	Bombay ...	17,150	The decrease is chiefly in the imports from British Burmah, owing, as shown in the report on trade and customs for 1871-72 just published by the Revenue Department of that province, to "a most extraordinary increase" in the shipments to foreign ports, chiefly to Europe, caused no doubt by the improvement in the English cotton markets.	
	Madras ...	.....	97,764	
	Coconada ...	40,847	.....	
	Tuticorin ...	.....	79,535	
	Rangoon ...	.....	2,87,422	
	Other ports ...	19,675	660		
	Total ...	77,678	4,65,381		
	Deduct increase ...	.....	77,678	
	Net decrease ...	.....	3,87,703	
British cotton piece-goods	Bombay	10,57,802		The remarks made against cotton piece-goods and twist from foreign countries (statement No. 3) apply to the decreases in the imports of similar goods from British Indian ports here shown.
	Madras ...	.....	51,346	
	Negapatam ...	.....	3,412	
	Rangoon ...	.....	9,592	
	Moulmein ...	.....	7,510	
	Other ports ...	3,692	4,304		
	Total ...	3,692	11,33,966		
	Deduct increase ...	.....	3,692	
	Net decrease ...	.....	11,30,274	
British twist	Bombay	1,36,369	The decrease is no doubt owing to increased shipments having been made to other countries, especially England, as suggested in the remarks entered against hides and skins exported to foreign countries.—(Statement No. 4.)	
	Madras ...	.....	27,944	
	Rangoon ...	.....	48,431	
	Other ports ...	.....	113	
	Decrease ...	.....	2,12,857	
Hides and skins	Gapanpore	1,44,387		The increase is but a moiety of the decrease in the imports of spices from foreign ports as shown in statement No. 3, against which it may be placed as a set-off.
	Coconada ...	.....	96,929	
	Bimlipatam ...	.....	1,52,195	
	Madras ...	59,033	.....	
	Other ports ...	5,979	11,194		
		Total ...	65,012	4,04,705	
	Deduct increase ...	.....	65,012	
	Net decrease ...	.....	3,39,693	
Spices	Masulipatam ...	29,793	The increase is but a moiety of the decrease in the imports of spices from foreign ports as shown in statement No. 3, against which it may be placed as a set-off.	
	Alepee ...	73,888	.....	
	Cochin ...	13,639	.....	
	Tellicherry ...	74,365	.....	
	Cananore ...	40,008	.....	
	Bombay ...	.....	48,599	
	Calicut ...	.....	28,049	
	Buddugong ...	.....	17,012	
	Other ports ...	12,894	13,960		
		Total ...	2,44,587		1,07,620
	Deduct decrease ...	1,07,620	.....	
	Net increase ...	1,36,967	.....	
Country twist	Bombay ...	73,914	In the absence of any reliable information on the point, the increase may be attributed to an exhaustion of stocks and an increased demand for Bombay twist.	
	Rangoon ...	14,702	.....	
	Other ports ...	1,176	.....	
	Net increase ...	89,792	.....	
Precious stones	Rangoon ...	63,104	The British Burmah Customs Report for 1871-72 states that "the trade in rubies and other precious stones is fluctuating, and depends much upon the King of Ava, who holds it as a monopoly."	
	Other ports ...	.....	1,700	
	Total ...	63,104	1,700		
	Deduct decrease ...	1,700	.....	
	Net increase ...	61,404	.....	

Articles.	Whence imported.	FLUCTUATIONS.		Remarks explaining the cause of fluctuation.
		Increase.	Decrease.	
IMPORTS.				
<i>All other Articles—</i>				
Fruits	Bombay	2,711	The imports chiefly comprise coconut kernel, the large increase in the importation of which may be attributed to the high prices which prevailed here throughout the year for coconut-oil.
	Madras	31,389	.....
	Coconada	18,194	.....
	Narakel	71,294	.....
	Alippe	5,51,110	.....
	Cochin	1,13,170	.....
	Calicut	79,639	.....
	Tellicherry	49,139	.....
	Buddagoug	45,558	.....
	Other ports	19,287	.....
	Total	9,81,780	2,711	
	Deduct decrease	2,711	
	Net increase	9,79,069	
Gums	Bombay	18,008	The increase is owing to the inclusion of catch, which is largely imported from Rangoon, under the heading "gums," according to the new classification. Hitherto catch used to be included in the heading "all other articles."
	Rangoon	5,25,724	.....
	Net increase	5,13,732	.....
Indigo	Madras	92,772	Calcutta probably offered a better market for indigo than Madras, which no doubt induced the large exports from the latter Presidency.
	Coconada	.....	23,558
	Masulipatam	6,79,445	.....
	Other ports	2,130	.....
	Total	7,44,617	23,558	
	Deduct decrease	23,558	
	Net increase	7,21,059	
Tea	Rangoon	1,68,411	The trade in tea between Rangoon and other countries is not noticed in the published report from British Burmah on the trade and customs for 1871-72.
	Other ports	.....	2,363
	Total	1,68,411	2,363	
	Deduct decrease	2,363	.....
	Net increase	1,66,048	
Seeds	Coconada	6,93,950	The imports consist chiefly of castor-seed, the large shipments from Coconada and Masulipatam being probably owing to increased produce, and a better market offering in Bengal.
	Masulipatam	4,81,396	.....
	Madras	35,124	.....
	Vizagapatam	14,201	.....
	Rangoon	25,782	.....
	Cottapatam	16,919	.....
	Other ports	.....	724
	Total	12,67,681	724	
	Deduct decrease	724	
	Net increase	12,66,957	
Wood and timber	Bombay	19,905	The decrease, which is almost entirely in Moulmein teak, may be attributed to the demands of the East Indian Railway Company for sleepers having been considerably lessened owing to the completion of the chord line.
	Madras	.....	29,191
	Rangoon	22,275	.....
	Moulmein	.....	4,05,125
	Other ports	.....	300
	Total	22,275	4,51,524	
	Deduct increase	22,275	
	Net decrease	4,29,249	
Woollen goods	Bombay	58,335	Unfavorable results at previous shipments.
	Madras	.....	27,259
	Rangoon	.....	20,129
	Other ports	.....	12,333
	Decrease	1,18,056	
Silk piece-goods	Bombay	1,17,719	
	Other ports	.....	2,250
	Decrease	.....	1,39,009

CALCUTTA CUSTOM HOUSE,
The 30th October 1872.

J. A. CRAWFORD,
Collector of Customs.

Statement showing the fluctuations in the value of the Exports of the following articles to British Indian Ports, specially noticed in the Calcutta Customs Annual Statement No. 7, in 1871-72, as compared with those of 1870-71.

ARTICLES.	To what place exported.	FLUCTUATIONS.		Remarks explaining the cause of variation.
		Increase.	Decrease.	
EXPORTS.	Bombay	4,50,165.	The markets both here and in the North-West having been dull, and stocks having accumulated, holders were no doubt forced to re-export largely to other ports.
	Madras	11,37,775	.....
	Gopulpore ... ..	.....	14,380
	Coconada ... ..	.....	17,056
	Vizagapatam ... ..	.....	13,691
	Bimlipatam	16,278	.....
	Negapatam ... ..	.....	19,471
	Tuticorin ... ..	.....	10,085
	Akyab ... ..	.....	82,073
	Rangoon ... ..	.....	4,35,675
	Moulmein ... ..	.....	70,615
	Other ports	29,369	9,426	
	Total	16,33,887	6,82,692	
Deduct decrease	6,82,692	.....	
Net increase	9,51,195	.....	
Thread	Rangoon	36,929	Ditto ditto ditto.
	Moulmein	7,085	.....
	Other ports	1,434	.....
	Net increase	45,448	.....
British Twist	Bombay	8,800	Ditto ditto ditto.
	Madras	7,01,080	.....
	Coconada	11,158	.....
	Bimlipatam	1,37,753	.....
	Akyab ... ..	.....	1,98,244
	Rangoon ... ..	.....	1,12,330
	Moulmein	17,819	.....
	Other ports	3,369	10,389	
Total	8,71,182	3,59,763		
Deduct decrease	3,59,763	.....	
Net increase	5,11,419	.....	
Jute (raw)	Bombay	4,23,013	The increase may be attributed to a bumper season, which has also necessitated large shipments to Europe.
	Tuticorin	23,636	.....
	Rangoon ... ..	.....	5,897
	Other ports ... ..	.....	2,005
	Total	4,46,649	8,802	
Deduct decrease	8,802	.....	
Net increase	4,37,847	.....	
Manufactures of Jute	Bombay	3,35,921	One-half of the increase went to Rangoon owing, as explained in the report from British Burmah and on Trade and Customs for 1871-72, "to the increased demand for grain." The same explanation may be accepted of the increased exportations to Bombay, Madras, and Moulmein, though no special information on the point is available.
	Madras	4,30,607	.....
	Coconada	44,233	.....
	Kurrachee	25,122	.....
	Pondicherry	18,903	.....
	Rangoon	9,04,653	.....
	Negapatam	21,632	.....
	Moulmein	1,02,953	.....
	Tuticorin	27,517	.....
	Alipce	7,613	.....
	Corbin	10,350	.....
	Bassein ... ..	.....	65,261
	Tellicherry	12,811	.....
	Akyab ... ..	.....	1,03,585
Other ports	21,941	2,032		
Total	19,66,389	1,70,881		
Deduct decrease	1,70,881	.....	
Net increase	17,95,508	.....	
Country Silk Piece-goods	Bombay	3,20,952	The decrease in the exports to Bombay, &c., was apparently owing to the large increase in the shipments to Rangoon, where silk goods are reported to have "sold briskly, especially at the time of the 'Hte' festival in Rangoon." The report further states that "the great increase in the imports of silk goods would seem to indicate that the people are now better able to afford to purchase these goods than formerly."
	Madras ... ..	.....	35,798
	Gopulpore ... ..	.....	27,838
	Rangoon	12,10,660	.....
	Moulmein	16,720	.....
	Other ports	14,309	27,315	
	Total	12,41,689	4,11,933	
Deduct decrease	4,11,933	.....	
Net increase	8,29,756	.....	

ARTICLES.	To what place exported.	FLUCTUATIONS.		Remarks explaining the cause of variation.
		Increase.	Decrease.	
EXPORTS.				
<i>All other Articles—</i>				
Apparel ...	Bombay	41,449	No satisfactory information available.
	Madras ...	17,307	.....
	Akyab ...	.....	20,305
	Rangoon ...	44,175	.....
	Bimlipatam ...	28,820	.....
	Vizagapatam ...	52,171	.....
	Other ports ...	19,555	6,102	
	Total ...	1,22,097	66,916	
	Deduct decrease ...	66,916	.....
	Net increase ...	55,181	.....
Cotton (raw) ...	Bombay ...	1,33,870	Improvement in trade, and partly speculation.
	Total increase ...	1,33,870	.....
Drugs and Medicines ...	Bombay ...	1,212	Improvement in trade, and partly speculation.
	Madras ...	1,32,427	.....
	Rangoon ...	7,545	.....
	Other ports ...	.....	6,057
	Total ...	1,41,184	6,057	
	Deduct decrease ...	6,057	.....
	Net increase ...	1,35,127	.....
Dyeing and Coloring materials ...	Bombay ...	8,191	Improvement in trade, and partly speculation.
	Rangoon ...	40,736	.....
	Madras ...	39,085	.....
	Other ports ...	.....	272
	Total ...	88,012	.....
	Deduct decrease ...	272	.....
	Net increase ...	87,740	.....
Glass ...	Rangoon ...	80,555	Bad market in Calcutta. Shipped to try other marts.
	Akyab ...	11,558	.....
	Other ports ...	23,877	.....
	Net increase ...	1,15,990	.....
Hemp, and manufactures of— ...	Bombay	47,511	The items of increase and decrease being made up of a number of small shipments, no satisfactory explanation of the variations can be given.
	Madras ...	.....	9,500
	Rangoon ...	3,075	.....
	Moulmein ...	12,319	.....
	Other ports ...	.....	18,980
	Total ...	16,021	70,157	
	Deduct increase ...	.....	16,024
	Net decrease ...	.....	60,133
Leather, manufactures of—	Rangoon	57,639	Not noticed specially in the Annual Report on the Trade and Customs of British Burma just published.
	Other ports ...	.....	6,993
	Net decrease ...	.....	64,631
Oil ...	Bombay	14,144	Ditto. The remaining items do not call for any special remarks.
	Akyab ...	1,544	.....
	Rangoon ...	.....	61,307
	Moulmein ...	.....	20,500
	Other ports ...	.....	3,565
	Total ...	1,544	1,02,516	
	.....	1,544	
	Net decrease ...	.....	1,00,972
Provisions ...	Bombay	1,03,765	The decrease under Bombay is probably owing to a divergence in favour of Rangoon and Moulmein. The increases to the latter ports are not specially noticed in the British Burma Annual Report for 1871-72, and no satisfactory explanation is available here. The chief article of export was ghee.
	Akyab ...	1,375	.....
	Rangoon ...	1,73,204	.....
	Moulmein ...	90,977	.....
	Port Blair ...	10,489	.....
	Other ports ...	.....	1,816
	Total ...	2,70,135	1,05,581	
	Deduct decrease ...	1,05,581	.....
	Net increase ...	1,70,554	.....

ARTICLES.	To what place exported.	FLUCTUATIONS.		Remarks explaining the cause of variation.
		Increase.	Decrease.	
EXPORTS.				
<i>All other Articles—</i> (Continued.)				
Seeds ...	Bombay	34,083	The decrease in the exports to Rangoon is entirely in teel-seed, which probably did not find a good market in that port during the previous year. No special notice has been taken of the trade in "seeds" in the Annual Report on the Trade and Customs of British Burmah for 1871-72.
	Madras ... ..	.....	20,811
	Bimlipatam ... ..	.....	14,460
	Negapatam ... ..	.....	23,548
	Narrakel ... ..	.....	11,022
	Cochin ... ..	.....	16,717
	Rangoon ... ..	.....	3,01,955
	Moulmein ... ..	.....	37,542
	Other ports ... ..	.....	5,912
	Not decrease ... ..	.....	4,90,658
Spices ...	Bombay	2,52,860	The decrease in the trade with Rangoon would appear from the Annual Report on the Trade and Customs of British Burmah for 1871-72 to be owing to the local markets having been overstocked by the large importations in 1860-70 and 1870-71, since prices having been reduced in consequence. The remaining decreases may be attributed to short supplies in Calcutta owing to a decrease in the imports. (Vide Statement No. 3.)
	Madras	11,317	.....
	Bimlipatam	1,254	.....
	Akyab ... ..	.....	7,455
	Rangoon ... ..	.....	3,75,971
	Moulmein ... ..	.....	59,717
	Other ports ... ..	.....	23,952
	Total	12,571	7,19,061	
	Deduct increase ... ..	.....	12,571
	Net decrease ... ..	.....	7,07,390
Raw Silk ...	Bombay	5,37,336	The shipments to Bombay and Madras, which appear to have changed places, may be considered a fluctuation in trade. There is no information regarding the other items of decrease.
	Madras	5,05,194	.....
	Gopulpore ... ..	.....	16,450
	Bimlipatam ... ..	.....	63,022
	Negapatam ... ..	.....	35,830
	Akyab ... ..	.....	6,288
	Other ports ... ..	.....	2,490
	Total	5,05,194	6,61,386	
	Deduct increase ... ..	.....	5,05,194
	Net decrease ... ..	.....	1,56,192
Tobacco ...	Bombay	12,086	The principal decrease is in the exports to Rangoon, owing, as stated in the British Burmah Annual Report, to a large increase "in the imports from beyond the frontier," which are said to be taking the place of tobacco imported from the Madras coast.
	Akyab	12,041	.....
	Rangoon ... ..	.....	4,30,827
	Moulmein	7,871	.....
	Other ports	996	.....
	Total	22,938	4,42,913	
Deduct increase ... ..	.....	22,908	
Net decrease ... ..	.....	4,20,005	
Tea ...	Bombay	35,870	Owing to an increased produce during the past season.
	Madras	57,013	.....
	Other ports ... ..	.....	9,675
	Total	92,913	9,675	
	Deduct decrease	9,675	.....
Net increase	83,238	.....	
Country goods ...	Pieco- Bombay	18,580	The decrease is no doubt the consequence of an improved market here owing to stocks being lessened.
	Akyab ... ..	.....	16,107
	Rangoon ... ..	.....	34,229
	Other ports ... ..	.....	4,043
	Net decrease ... ..	.....	72,956
Twist ...	Akyab	2,467	The above remarks apply here also.
	Rangoon ... ..	.....	61,223
	Moulmein	17,162	.....
	Other ports ... ..	.....	4,188
	Total	17,162	67,878	
	Deduct increase ... ..	.....	17,162
Net decrease ... ..	.....	50,716	

ARTICLES.	To what place exported.	FLUCTUATIONS		Remarks explaining the cause of variation.
		Increase.	Decrease.	
EXPORTS.				
<i>All other articles—</i> (Concluded.)				
Sugar ...	Bombay	23,13,767	Nearly the entire decrease is in the exports to Bombay. In paragraph 121 of my Customs Annual Report, the falling off was explained as having been most probably caused by the large despatches by rail from Mirzapore and Benares to stations on the G. I. P. Railway. The total quantity so carried during the first-half of 1871 is equal to three-fourths of the entire decrease in the exports to Bombay here shown. It may safely be assumed that the remaining one-fourth (if not a great deal more) was carried by rail during the second-half of the year.
	Madras ...	.....	15,771
	Negapatam ...	.....	21,192
	Narrakel ...	2,912	.....
	Allepee ...	14,747	.....
	Cochin ...	.....	35,267
	Calicut ...	.....	7,639
	Cannanora ...	.....	21,551
	Rangoon ...	.....	54,561
	Moulmein ...	.....	65,900
	Other ports ...	1,029	7,857	
	Total ...	18,688	15,46,514	
	Deduct increase	18,988	
	Net decrease	16,27,826	
Grain and Pulse ...	Bombay	17,20,132	The decrease is principally in the exports of rice to Bombay. As explained in paragraph 121 of my Customs Annual Report, the cause of the decrease is the over-valuing of the article, the falling off in quantity being only 106,508 cwts., the value of which would be about 3 lakhs of rupees, whereas the decrease in value amounts to upwards of Rs. 15,00,000. The remaining items of increase and decrease, in the absence of specific information on the point, may be considered as fluctuations in trade.
	Madras ...	.....	1,33,379
	Vizagapatam ...	11,244	.....
	Masulipatam ...	9,532	.....
	Bimlipatam ...	1,46,891	.....
	Narrakel ...	.....	79,620
	Cochin ...	.....	1,14,569
	Calicut ...	.....	63,614
	Tellicherry ...	39,086	.....
	Cannanore ...	.....	77,272
	Badagong ...	.....	27,237
	Kurnachee ...	.....	72,064
	Mandvee ...	.....	25,168
Rangoon ...	.....	75,415	
Moulmein ...	.....	83,419	
Other ports ...	.....	1,39,371	
	Total ...	2,06,653	26,33,343	
	Deduct increase	2,06,653	
		24,26,690	

J. A. CRAWFORD,
Collector of Customs.

CALCUTTA CUSTOM HOUSE,
The 30th October 1872.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 28th December 1872.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1872.				
BUDDWAN DIVISION.	1 Burdwan	Dec. 31st.*	Nil.	Weather cold	Amun dhan still being reaped; average yield expected to be 10 annas; winter crops promising.	Fever as before. Cholera increasing.
	2 Bancoorah	" 28th	Nil.	Clear, dry, and cold	The cutting of the paddy crops is over in many places. The sugarcane and other rubeo crops are doing well.	
	3 Beerbhoom	" 28th	Nil.	Clear and cold	Most of the rice crop cut. The prospects of sugarcane and other winter crops generally good.	
	4 Midnapore	" 28th	Nil.	Fine	Good. Prices tend to decline still further.	
	5 Hooghly	" 28th	Nil.	Fair and cold; north wind.	Amun rice almost gathered. Winter crops promising.	Fever not abated at Serampore, but abating at Bidyabatty.
	Howrah	" 28th	Nil.	Weather fairly cold and dry.	Amun rice crops are being reaped. State and prospects of sugarcane good.	Fever still prevalent.
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 24-Pergunnahs	" 31st	Nil.	Cold and fine	The amun paddy harvest has well advanced, and sugarcane is being gradually removed from the fields. The cold weather crops are progressing fairly.	There is a good deal of fever in the Sudder Sub-division. And cholera in a mild form prevails in the sub-divisions of Bussirhaut, Baraset, Barripore, and Dum-Dum.
	7 Nuddea	" 28th	Nil.	Seasonable and fine	Amun crops have been generally gathered. Cold weather crops are promising. In the south of the district tobacco is very fine.	
	8 Jessore	" 28th	Nil.	Weather clear and bright.	Good outturn of amun crop is expected. Reaping of the same has busily commenced.	Reports from some of the sub-divisions have not been received, owing to the sub-divisional officers being out in camp.
RAJSHAHYE DIVN.	9 Moorshedabad	" 28th	Nil.	Cool and seasonable, with a little wind; during the day. Clear sky.	Cutting of amun paddy not finished yet. Kalai is being cut; a 16-anna crop is expected in some places: cultivators expect a good harvest from cold weather crops. Sugarcane and mulberry in good condition.	
	10 Dinagepore	" 28th	Nil.	Fair and seasonable	All very good and satisfactory.	
	11 Maldah	" 28th	Nil.	Weather fair; temperature cool. Range of therm. between 64 and 75. Barom. 29.650 to 29.800	The amun crop has already been reaped; hyminty crop is being reaped. The prospects of the cold weather crops, such as mutton, khensari, wheat, barley, &c., are favorable; kalai is being reaped.	Station healthy. Fever much prevalent in the northern part of the district.
	12 Rajshahye	.....	.....	.....	.....	Return not received.

* Telegram of the 31st December received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>						
		1872.				
RAJSHAHY DIVN.	13 Rungpore	Dec. 28th	Nil.	Cold and somewhat foggy.	Sugarcane being cut. Cutting of winter rice far advanced.	
	14 Bograh	" 28th	Nil.	Fine.	The amun crop is on the whole a full one; about half of it has been harvested. The accounts of minor crops are good.	
	15 Pubna	" 28th	Nil.	Fine and seasonable; north-west wind.	All the crops of the season are doing well.	
COCH BEHAR DIVN.	16 Darjeeling	" 28th	Nil.	Clear and very cold.	Progressing favorably both in the hills and in the plains.	
	17 Julpigoree	" 28th	Nil.	The usual cold weather with occasional brisk breezes.	Prospects good.	
	Cooch Behar	" 28th	Nil.	Fine	Prospects of tobacco, mustard seed, and other cold weather crops are good. Keeping dhan crop nearly finished.	
<i>Eastern Districts.</i>						
DACCA DIVN.	18 Dacca	" 31st*	Nil.	Fair and cool	Prospects of crops favorable.	
	19 Furreedpore	" 28th	Nil.	Weather dry and cold.	The harvest is being reaped all over the district; the rice crop especially in the low lands is still unripe, and will not be fit for cutting before the last week of January next.	
	20 Backergungo	" 28th	Nil.	Cold	Good. The harvest appears to be a good one.	
	21 Mymensing	" .....	.....	.....	.....	Return not received.
	22 Sylhet	" 21st	Nil.	Cool and pleasant	Nearly 14 annas of the amun and sail crops have been cut. The out-turn is good.	
	23 Cachar	" 21st	Nil.	Fair and cold	Twelve annas of a heavy rice crop cut. No damage from insects. Mustard indifferent.	
	CHITTAGONG DIVN.	24 Chittagong	" 21st	Nil.	Seasonable, dry, fine, and cool.	Favorable. The paddy crop is nearly all reaped, and promises a fair out-turn. Cold weather crops reported to be doing well.
25 Nonkhally		" 21st	Nil.	Cold and fine	Cutting of the amun dhan not yet completed. Cold weather crops progressing favorably.	
26 Tipperah		" 28th	Nil.	Seasonable	The harvest has been a very good one, and the cold weather crops all promise well at present.	
27 Chittagong Hill Tracts		" 21st	Nil.	Foggy and cold in the morning and night.	The cotton is being gathered in. The prospects of mustard are good.	A slight shock of earthquake at 8 A.M., Saturday.
	Hill Tipperah	" 21st	Nil.	Generally clear, but occasionally cloudy. Warmer than usual at this time of the year.	The cotton has been gathered, and the rice crop is being reaped. Prospects good.	Public health good.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.		1872.				
PATNA DIVISION.	28 Patna	Dec. 31st*	Nil.	Weather fine and cold.	The rubee crops have grown well, but rain is urgently required.	Health of the district good.
	29 Gya	" 28th	Nil.	Fine and still; rather warm for the season.	The rubee crops are favorable.	
	30 Shahabad	" 28th	Nil.	Clear and cold with west wind.	Little change from last week. The rubee so far promises well. Rain would do much good.	
	31 Tirhoot	" 28th	Nil.	Clear and cold	There is very little change from previous week. The rice harvest is still progressing, and the prospects of the rubee crops, including poppy, on the whole promising.	
	32 Sarun	" 28th	Nil.	Weather fine. Very cold in the mornings and evenings.	Rahar, peas, wheat, barley, gram, cotton, and sugarcane, good; in some places sugarcane is being cut and put into the mills. Indigo fields are being prepared for next year. Rain is wanted for rubee crops; in some places they are being irrigated.	
	33 Chumparun	" 28th	Nil.	Fair. Nights very cold.	The prospects of the crops remain same as in the last week. They are not so favorable as last year. The dhan is being cut.	
	34 Monghyr	" 28th	Nil.	Fine. The cold greater than last week. All signs of rain have disappeared.	Rice crop all cut, averages from 10 to 12 annas. Aughany jenra nearly all cut; a very full crop. Rubee crops all look well, but people say we should have rain soon.	
BHAUGULPORE DIVISION.	35 Bhagulpore	" 31st*	Nil.	Fine, but not so cold as it should be.	Rice crops being rapidly gathered; outturn generally better than was expected. Rubee crops so far excellent.	Small-pox in Bhagulpore, Coghong, and Chundun. Fever in Mudipurah sub-division.
	36 Purneah	" 28th	Nil.	Cold and clear	Very good. The aughany harvest is nearly over. Rubee crops look well.	
	27 Sonthal Pergunnahs...	" 28th	Nil.	Bright, dry, and cold	Favorable on the whole. Rajmelal sub-division dhan crop proves a little better than was expected. In Deoghur the paddy is almost all cut and will give about 10 annas crop. Mustard and other crops are also being cut and promise well. A little rain would do good.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	" 31st*	Nil.	Weather cool	Sarud crop very good. Rubee crop generally promising.	
	39 Pooree	" 21st	Nil.	Fair and warm	The rice harvesting progresses satisfactorily. Grain abundant and cheap.	
	40 Balasore	" 28th	Nil.	Bright and cool	Cold weather crops prospering. Paddy crop nearly all cut; outturn excellent.	
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
	41 Hazareebaugh	" 28th	Nil.	Seasonable, but unusually warm.	Continue to progress favorably.	

* Telegram of the 31st December received on the same day.

No	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
CHOTA NAGPORE.—(Contd.)						
	<i>South-West Frontier Agency.—(Contd.)</i>	1872.				
42	Loharduggah	Dec. 28th	Nil.	Bright with cold winds	In Chota Nagpore the crops promise well. In Palamow the wheat and barley are beginning to suffer from want of rain.	
43	Singbhoom	" 21st	Nil.	Favorable	Favorable.	
44	Maunbhoom	" 28th	Nil.	Fine and clear.	The rice crop has now all been gathered in, and Surgoonja also; the sursoo is still on the ground and promises an abundant yield. All the cold weather crops, consisting of wheat, barley, gram, peas, linseed, sugarcane, cotton, and opium, are doing well.	
ASSAM AND ADJACENT HILLS.						
45	Goalparah	" 21st	Nil.	Cool and seasonable. Mornings foggy.	Salce dhan nearly harvested. Prospects of mustard, cotton, and other crops, promising.	Cholera has broken out in Dhoobree subdivision. A severe earthquake was felt on the 19th December at 12-25 noon.
46	Kamroop	" 30th*	Nil.	Heavy fogs in the morning; the weather has been perceptibly colder during the past week.	Shali dhan is still being reaped; mustard seed, sugarcane, and pulses favorable.	Public health good.
47	Durrung	" 21st	Nil.	Chilly, foggy mornings, bright days; little and variable breeze.	Satisfactory.	
48	Nowgong	" 21st	Nil.	Weather cold, clear, and seasonable.	The rice crop being rapidly cut and gathered in. Cold weather crops looking very fine. The plucking of tea leaf over for the season, and plants being pruned.	
49	Sebsaugor	" 21st	Nil.	The weather has been cold, with mornings foggy and evenings fair; rains none.	Three-fourths of the paddy crop has been reaped.	Cholera has shown signs of continued decrease.
50	Luckimpore	" 21st	Nil.	Weather seasonable, dense fogs in the mornings, generally favorable for all the crops.	Crops doing well, harvest still being got in.	
				Thermometer. Maximum ... 79° Minimum ... 49°		
51	Naga Hills	" 14th	Nil.	Fine	Late crops still being cut.	
52	Khasi and Jynteah Hills.	" 21st	Nil.	Bright sun	All the crops have been harvested nearly. There is very little on the ground now.	
53	Garo Hills	" 21st	Nil.	Seasonable and fine	No crops on the ground but cotton, which is being gathered now.	

* Telegram of the 30th December received on the 31st.

Published for general information.

CALCUTTA.
The 31st December 1872.J. WARE EDGAR,
Offg. Junior Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 8th to 14th Dec. 1872.	Rain from 15th to 21st Dec. 1872.	RAIN FROM 1ST JANUARY 1873.		REMARKS.	
					Inches.	Up to date.		
BENGAL.								
WESTERN DISTRICTS.								
BURDWAN.	Burdwan	Burdwan	Nil.	Nil.	42.47	21st Dec.		
		Cutwa	ditto	ditto	53.76	ditto		
		Culina	ditto	ditto	40.20	ditto		
	Bancoorah	Rood-Bood	ditto	ditto	45.35	ditto		
		Ransergunge	ditto	ditto	40.23	ditto		
		Jehansabad	ditto	ditto	68.28	ditto		
		Bancoorah	ditto	ditto	44.41	ditto		
	Beerbhoom	Soree	ditto	ditto	50.89	ditto		
		Midnapore	ditto	ditto	55.39	ditto		
	Midnapore	Tumlook	Not rec.	Not rec.	46.14	7th Dec.	Not received 24th to 30th Nov.	
Gurbotta		Nil.	Nil.	43.66	21st Dec.	Not received 6th to 12th Oct., and 27th Oct. to 2nd November.		
Contal		{ Dy. Collr.'s Office	ditto	ditto	46.08	ditto	Not received 29th Sept. to 19th Oct.	
Hooghly	Hooghly	{ Exe. Engr.'s Office	ditto	ditto	56.29	ditto		
	Serampore		ditto	ditto	51.01	ditto		
	Howrah		ditto	ditto	55.70	ditto		
CENTRAL DISTRICTS.	24-Pe gunnahs	Saugor Island	ditto	ditto	67.23	ditto		
		Calcutta	ditto	ditto	51.05	ditto		
		Alipore	{ Dispensary	ditto	ditto	48.55	ditto	
		Rasasrhan	{ Jail	ditto	ditto	40.70	ditto	
		Barnset		ditto	ditto	60.12	ditto	
		Diamond Harbour		ditto	ditto	49.78	ditto	
		Barpore		ditto	ditto	56.97	ditto	
		Sankhorah		ditto	ditto	50.90	ditto	
		Barrackpore		ditto	ditto	54.02	ditto	
		Dum-Dum		ditto	ditto	58.69	ditto	
Nudda	Kishnachur		ditto	ditto	45.07	ditto		
	Rongong		ditto	ditto	54.07	ditto		
	Meherpore		ditto	ditto	42.24	ditto		
	Choodangah		ditto	ditto	39.00	ditto	Not recorded 29th Sept. to 19th Oct	
	Koochta		ditto	ditto	46.46	ditto		
Jessore	Ranaghat		ditto	ditto	49.13	ditto		
	Jessore		ditto	ditto	69.11	ditto		
	Nurail		ditto	ditto	60.58	ditto		
	Khoolneah		ditto	ditto	55.62	ditto		
	Jendah		ditto	ditto	69.54	ditto		
Moorshedabad	Bazirhat		ditto	ditto	55.74	ditto	Not received 24th to 30th Nov.	
	Masrurah		ditto	ditto	51.03	ditto		
	Berhampore		ditto	ditto	65.64	ditto		
	Jamoukandi		ditto	ditto	50.28	ditto		
	City Moorshedabad		ditto	Not rec.	54.41	14th Dec.	Not received 15th to 19th Oct.	
	Juniapore		ditto	Nil.	55.85	21st Dec.		
	Azimungo		ditto	ditto	48.29	ditto	From 1st February.	
	Dinapore		ditto	ditto	76.07	ditto		
	Maldah		ditto	ditto	52.31	ditto		
	Rajshahye		ditto	ditto	54.08	ditto		
Rangpore	Natore		ditto	ditto	46.82	ditto		
	Rangpore		ditto	Not rec.	80.78	14th Dec.		
	Rhowanigunge		ditto	ditto	81.37	ditto		
	Titalya		ditto	Nil.	126.77	21st Dec.		
	Bograh		ditto	ditto	66.88	ditto		
Pubna	Pubna		ditto	ditto	58.28	ditto		
	Sorajungo		ditto	ditto	56.80	ditto	Not received 15th to 21st Sept. and 13th to 19th Oct.	
COOCH BEHAR.	Darjeeling	Darjeeling	{ Telegraph Office	Not rec.	Not rec.	106.96	30th Sep.	
		Hospital		Nil.	Nil.	107.46	21st Dec.	
	Julpigoree	Runghee		Not rec.	Not rec.	43.15	30th June.	
		Julpigoree		Nil.	Nil.	125.40	21st Dec.	
		Fallscoota		ditto	ditto	52.55	ditto	From 12th Aug.
Cooch Behar Tributary State	Boda		ditto	ditto	85.30	ditto		
	Cooch Behar		ditto	ditto	132.59	ditto		
Bhutan Dooars	Buxa		ditto	ditto	191.84	ditto		
EASTERN DISTRICTS.	Dacca	Dacca	{ Telegraph Office	ditto	ditto	72.53	ditto	
		Hospital		ditto	Not rec.	65.40	14th Dec.	
	Furroedpore	Moonshegunge		ditto	ditto	50.71	ditto	Not received 17th to 30th Nov. From 10th June, and not received 17th to 30th November.
		Manickgunno		ditto	ditto	23.77	ditto	From 15th July, and ditto ditto.
		Furroedpore		ditto	Nil.	53.36	21st Dec.	
	Bacorgunge	Goalundo		ditto	ditto	53.37	ditto	Not received 13th to 19th Oct.
		Burriaul		ditto	ditto	89.14	ditto	
		Perozpore		ditto	ditto	62.53	ditto	
		Madarijore		ditto	ditto	76.32	ditto	From 13th May.
	Mymensing	Patookhally		ditto	ditto	90.73	ditto	
Dowlat Khan			ditto	ditto	81.49	ditto		
Mymensing			ditto	ditto	86.46	ditto	Not received 1st to 7th Decembar.	
Sylhet	Jamulpore		ditto	ditto	77.54	ditto	ditto ditto ditto.	
	Attaal		ditto	ditto	53.08	ditto	ditto ditto ditto.	
	Kishoregungo		ditto	ditto	94.90	ditto	ditto ditto ditto.	
Cachar	Sylhet		ditto	ditto	203.30	ditto		
	Cachar		ditto	ditto	124.14	ditto		
	Hylakandy		Not rec.	Not rec.	117.76	2nd Nov.		
CHITTAGONG.	Chittagong	Koyah		Nil.	Nil.	129.54	21st Dec.	Not received 17th Nov. to 7th Dec.
		Chittagong	{ Telegraph Office	ditto	ditto	90.20	ditto	
	Chittagong Hill Tracts	Jail		ditto	Not rec.	87.50	14th Dec.	
		Cox's Bazar		ditto	ditto	134.70	ditto	Not received 24th to 30th Nov.
	Tipperah	Ranganuteo Hill		ditto	ditto	101.08	ditto	
		Nonkhally		ditto	Nil.	109.10	21st Dec.	
Hill Tipperah	Comillah		ditto	ditto	81.54	ditto		
	Brahma-barlah		ditto	ditto	64.31	ditto		
	Hill Tipperah		ditto	ditto	22.40	ditto	From 4th August.	

DIVISION.	DISTRICT.	STATION.	RAIN FROM 8th to 14th Dec. 1872.		RAIN FROM 1st JANUARY 1873.		REMARKS.
			Inches.	Inches.	Inches.	Up to date.	
PATNA.	BEHAR.	Patna	Nil.	Nil.	31.17	21st Dec.	
		Behr	ditto	ditto	57.83	ditto	
	Patna	Barh	ditto	ditto	28.06	ditto	Not received 3rd to 9th Nov.
		Dinapore	{ Jail { Cantonment	ditto	ditto	26.35	ditto
	Gya	Gya	ditto	ditto	53.45	ditto	Ditto ditto.
		Nowadah	ditto	ditto	54.97	ditto	
	Shahabad	Aurangabad	ditto	ditto	39.18	ditto	
		Sherghotty	ditto	ditto	37.71	ditto	
	Tirhoot	Arrah	Not rec.	Not rec.	32.53	31st Aug.	
		Sasseram	Nil.	Nil.	35.45	21st Dec.	
	Sarun	Buxar	ditto	ditto	31.06	ditto	
		Bhulbooh	ditto	ditto	33.83	ditto	
	Chumpran	Mozufferpore	ditto	ditto	38.14	ditto	
		Burlingah	ditto	ditto	33.47	ditto	
	Monghyr	Hajipore	Not rec.	ditto	42.18	14th Dec.	
		Mudhubani	Nil.	ditto	38.20	30th Nov.	Not received 10th to 13rd Nov. Not received 1st to 7th Sept. and 10th to 16th Nov. and 24th Nov. to 7th Dec.
	Saran	Sectanmaree	Not rec.	ditto	55.28	7th Dec.	
		Tajpore	ditto	ditto	43.33	ditto	Not received 17th to 23rd Nov.
	Chumpran	Chuprah	ditto	ditto	38.48	16th Nov.	Not received 6th to 12th Oct. and 3rd to 9th Nov.
		Sewan	ditto	ditto	47.18	ditto	Ditto ditto ditto.
Monghyr	Motechhari	ditto	ditto	60.20	23rd Nov.	Not received 10th to 16th Nov.	
	Beltiah	Nil.	Nil.	52.50	21st Dec.		
BHAUGULPORE.	Bhaugulpore	Monghyr	ditto	ditto	41.27	ditto	
		Begowernai	ditto	Not rec.	40.82	14th Dec.	
	Purneah	Jamooie	ditto	ditto	32.04	ditto	Not recorded 20th Jan. to 2nd Feb.
		Bhaugulpore	ditto	Nil.	33.98	21st Dec.	
	Purneah	Soopool	ditto	ditto	57.30	ditto	
		Mudheypoorah	ditto	ditto	44.04	ditto	
	Sonthal Pergunahs	Banka	ditto	ditto	47.70	ditto	
		Purneah	ditto	ditto	60.21	ditto	
	Sonthal Pergunahs	Kishengunge	ditto	ditto	80.82	ditto	
		Arrareah	ditto	ditto	64.14	ditto	Not recorded 22nd to 26th Jan. Not received 24th to 30th Nov. Ditto 3rd to 9th ditto.
Sonthal Pergunahs	Deoghur	ditto	ditto	41.46	ditto		
	Jamtara	ditto	ditto	50.72	ditto		
Sonthal Pergunahs	Rajmahal	ditto	ditto	35.04	ditto		
	Pakour	ditto	ditto	47.17	ditto		
ORISSA.	Nya-Doomka	ditto	ditto	49.28	ditto		
	Godda	ditto	ditto	11.00	ditto	From 2nd September.	
ORISSA.	Cuttack	Cuttack { Telegraph Office ... Hospital	ditto	ditto	58.20	ditto	
		Jajipora	ditto	ditto	71.16	ditto	
	Cuttack	Kendrapara	ditto	Not rec.	58.44	14th Dec.	
		Jucutsumporo	ditto	ditto	62.75	ditto	
	Pooree	Jucutsumporo	ditto	ditto	75.89	ditto	
		False Point	ditto	Nil.	106.46	21st Dec.	
	Balasore	Pooree	ditto	ditto	75.14	ditto	
		Khoordah	ditto	ditto	77.09	ditto	
	Cuttack	Balasore	ditto	ditto	72.02	ditto	
		Melials	Bluddruck	ditto	ditto	61.73	ditto
CHOTA NAGPORE— SOUTH-WESTERN FRONTIER AGENCY.	Sambalporo	Sambalporo	Not rec.	Not rec.	64.40	9th Nov.	
		Hazareebaugh { Jail { Dispensary	Nil.	Nil.	35.10	21st Dec.	
Loharduggah	Pachumba	ditto	ditto	37.87	ditto		
	Ranchoo	ditto	ditto	42.23	ditto		
Singbhoom	Palamow	ditto	ditto	19.47	ditto		
	Chyebussa	ditto	ditto	29.05	ditto		
Maunbhoom	Purnia	ditto	ditto	51.16	ditto		
	Gobindporo	ditto	ditto	47.22	ditto	Not received 13th to 16th Oct. and 24th to 30th Nov.	
ASSAM & ADJACENT HILLS.	Goolparah	Goolparah	ditto	ditto	104.23	ditto	
		Dhoobree	ditto	ditto	108.41	ditto	
	Kamroop	Gowhatti	ditto	ditto	78.00	ditto	
		Burpettah	ditto	Not rec.	129.70	14th Dec.	
	Durrung	Tezporo	0.09	ditto	63.89	ditto	
		Munkledye	0.16	ditto	73.12	ditto	
	Nowgong	Nowgong	Nil.	Nil.	133.07	21st Dec.	
		Seehaugur	ditto	Not rec.	103.82	14th Dec.	
	Seehaugur	Golaghat	ditto	ditto	67.40	ditto	
		Jorehaut	ditto	ditto	80.46	ditto	Not received 24th to 7th Dec. Not received 4th to 16th Aug.
Luckimpore	Nazerah	Not rec.	ditto	73.69	30th Nov.		
	Debrooghur	0.21	ditto	112.02	14th Dec.		
Naga Hills	North Luckimpore	Nil.	ditto	35.93	ditto	From 21st August.	
	Suddya	0.04	ditto	96.81	ditto		
Khasi and Jynteah Hills.	Sainookoodting	Not rec.	ditto	41.07	24th Aug.		
	Shillong	Nil.	Nil.	81.85	21st Dec.		
Garohills	Jaowm	ditto	ditto	118.00	ditto		
	Cherrapoonjee	Not rec.	Not rec.	407.75	30th Nov.		
Garohills	Tura	Nil.	Nil.	111.30	21st Dec.		
	Benarus	ditto	ditto	31.83	ditto	Not received 13th to 26th Oct.	
Garohills	Akyab	ditto	ditto	173.00	ditto		

CALCUTTA,
The 28th December 1872.

H. F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 22nd to 28th December 1872.

STATIONS.	Date	Hour	Barometer reduced to 32.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat = 100	WIND.		Rain.	Clouds.	Weather Totals.
					Dry.	Wet.		Direction.	Velocity.			
CALCUTTA.	Dec. 22nd	10	30.055	30.074	70.4	64.0	68	NNW	C	
	18	29.924	29.942	70.0	67.4	60	NNW	...	...	C	
	23rd	10	30.050	30.078	71.5	65.5	70	NW	C	b
	18	29.930	29.948	70.0	66.3	55	NE	...	...	C	
	24th	10	30.050	30.089	72.4	65.3	68	NE	K	b
	16	29.953	29.971	70.	67.0	60	E NE	...	...	
	25th	10	30.125	30.144	69.4	61.5	60	NE		b
	16	30.005	30.024	71.6	61.0	53	N by W	...	...		b b
	26th	10	30.188	30.205	67.5	60.6	61	NE		b b
	16	30.031	30.050	74.5	61.3	55	NNW	...	...		b b
	27th	10	30.069	30.118	67.7	62.0	70	N		b b
	16	29.932	29.951	75.0	61.5	53	NE	...	...		b b
28th	10	30.022	30.041	69.2	60.4	64	NNE	...	...		b b
16	29.896	29.915	73.0	63.4	54	NE	...	...		b b	
PANGOR ISLAND.	22nd	10	30.052	30.058	72	61	62	N	2.5	...	C, CK	b, m
	16	29.935	29.941	78	67	53	N	3.9	...	Cs	b, m	
	23rd	10	30.084	30.074	73	67	71	NNW	1.1	...	C	b, m
	16	29.931	29.937	70	65	40	NNE	5.5	...	C	b, m	
	24th	10	30.058	30.094	75	68	68	N	2.0	...	C	b, m
	16	29.955	29.961	79	70	61	SW	4.8	...	K	b, m	
	25th	10	30.121	30.130	71	62	57	NE	5.3	...		b, m
	16	30.005	30.011	77	65	49	NNE	0.6	...		b	
	26th	10	30.188	30.194	69	61	60	N	0.7	...		b
	16	30.041	30.047	74	62	47	N	12.8	...		b	
	27th	10	30.108	30.114	67	62	71	N	6.7	...		b, m
	16	29.933	29.939	76	64	48	N	11.6	...		b, m	
28th	10	30.046	30.052	70	62	61	NE	1.2	...		b, m	
16	29.905	29.911	75	63	47	NNW	7.8	...		b		
CHITTAGONG.	22nd	10	29.902	30.057	71	67	80	N	2.3	...		b, m
	16	29.835	29.920	77	69	64	W	5.2	...		b	
	23rd	10	29.959	30.054	71	68	75	N	2.0	...	C	b, m
	16	29.838	29.932	77	60	53	N	4.8	...		b	
	24th	10	29.942	30.037	69	64	74	NNE	2.3	...	C, Cs	b, m
	16	29.800	29.934	77	66	53	NNW	4.7	...		b	
	25th	10	29.994	30.089	70	65	75	N	3.9	...		b, m
	16	29.863	29.959	77	71	73	NW	5.2	...		b	
	26th	10	30.32	30.127	70	64	70	NNW	3.0	...		b, m
	16	29.910	30.004	77	66	53	N	3.1	...		b	
	27th	10	30.008	30.105	69	69	100	NE	2.2	...		b, f
	16	29.900	29.904	75	68	68	WSW	3.9	...		b	
28th	10	29.912	30.007	67	62	74	N	3.4	...		b, m	
16	29.808	29.902	77	63	41	W	3.6	...		b		
MADRAS.	21st	10	30.007	30.037	82	74	66	N E by N	1.6	...		c
	16	29.903	29.933	80	74	74	N E by N	1.2	...		cloudy	
	22nd	10	29.889	30.019	76	72	81	N E by N	8	0.12		cloudy
	16	29.892	29.922	79	73	73	NE	11	...		cloudy	
	23rd	10	29.891	30.021	82	73	63	NE	14	...		c
	16	29.893	29.923	80	74	73	N E by N	13	...		c	
	24th	10	30.007	30.037	78	73	74	NNE	10	...		Ac
	16	29.915	29.945	81	71	59	N E by N	14	...		Ac	
	25th	10	30.056	30.080	79	71	65	N E by N	10	0.02		cloudy
	16	29.953	29.983	79	68	64	N E by N	11	...		b	
	26th	10	30.004	30.004	81	67	44	N E by N	17	...		c
	16	29.958	29.988	80	68	51	N E by E	15	...		cloudy	
27th	10	30.029	30.050	80	70	58	N E by E	15	...		Ac	
16	29.883	29.913	79	69	58	N E by N	...	...		
CUTTACK.	21st	10	30.057	30.141	75	68	68	W	2.1	...		
	16	29.916	29.939	82	69	48	W	2.4	...			
	22nd	10	30.004	30.087	77	69	64	WSW	0.6	...		b
	16	29.890	29.982	80	67	47	N	2.0	...			
	23rd	10	30.000	30.083	75	67	63	NNW	0.8	...		
	16	29.869	29.952	81	67	44	N	1.3	...			
	24th	10	30.007	30.091	74	67	67	WNW	0.7	...	C	b
	16	29.909	29.993	80	68	51	WNW	1.8	...			
	25th	10	30.059	30.143	74	63	72	NNE	0.6	...	C	
	16	29.910	30.032	80	68	51	E by S	1.8	...			
	26th	10	30.119	30.203	73	61	46	NN E	2.9	...		
	16	30.004	30.087	77	61	34	N	5.9	...			
27th	10	30.050	30.133	69	59	51	W	0.8	...			
16	29.907	29.990	76	61	37	W	3.0	...				
AKHAR.	22nd	10	30.003	30.025	76	69	68	NE	0.2	...		b
	10	29.897	29.919	76	67	60	W	1.2	...		b	
	23rd	10	30.003	30.025	77	70	68	E NE	0.4	...		b
	16	29.874	29.896	77	70	68	W	1.0	...		b	
	24th	10	29.988	30.068	75	67	63	E NE	0.1	...		b
	16	29.947	29.919	78	68	64	WNW	0.8	...		b	
	25th	10	30.028	30.050	74	66	63	NE	0.3	...		b
	16	29.937	29.959	76	68	64	W	0.1	...		b	
	26th	10	30.064	30.090	74	66	63	NE	0.3	...		b
	16	29.951	29.970	77	68	60	W	1.8	...		b	
	27th	10	30.011	30.033	72	64	62	NE	0.1	...		b
	16	29.877	29.899	77	65	49	W	1.6	...		b	
28th	10	29.971	29.993	73	62	50	NE	0.6	...		b	
16	29.854	29.876	78	67	53	W	2.1	...		b		

* Velocity of wind in miles per hour.

Mean Pressures and Temperatures of the preceding Table reduced to Sea-Level, with mean Anemometric results and observations of Sky serenity.

STATIONS.	Mean barometric pressure reduced to sea-level.	Mean temperature reduced to sea-level.	WIND.									Percentage and Resultant.	Mean velocity daily.	Mean serenity.
			North.	North-East.	East.	South-East.	South.	South-West.	West.	North-West.	Calm.			
Port Blair	...	...	...	2	...	9	...	44	...	5	...	70 S 30 W	Miles.	3.02
Madras	29.788	84.4	...	...	5	11	9	11	20	4	...	47 S 30 W	189.4	...
Vizagapatam	29.738	84.0	2	3	15	9	10	20	45	7	...	42 S 53 W	5.39	3.87
Akyab	29.793	81.9	5	5	19	13	26	14	26	10	...	27 S 21 W	20.8	3.24
False Point	29.750	85.0	2	3	9	27	12	42	9	2	14	47 S 8 W	...	...
Cuttack	29.758	82.7	3	14	20	7	19	25	10	4	18	22 S 9 E	80.1	5.78
Sauzor Island	29.739	83.6	7	3	13	18	35	30	9	6	6	47 S 8 W	259.7	3.58
Chittarong	29.781	81.4	8	4	23	28	11	18	3	3	19	35 S 41 E	186.1	3.77
Calcutta	29.743	83.2	5	4	8	19	42	27	8	6	...	42 S 6 W	100.7	...
Jessore	29.710	82.6	...	7	4	34	37	16	4	4	14	55 S 13 E	93.5	3.77
Dacca	29.755	83.0	4	1	5	20	34	34	5	6	6	56 S 12 W	125.6	3.54
Cachar	29.774	80.8	8	12	28	11	13	9	16	7	14	15 S 71 E	63.7	3.10
Hazareebaugh	29.643	83.6	7	8	12	23	19	12	9	20	8	10 S 12 E	120.1	5.05
Berhampore	29.740	84.1	5	9	16	24	20	23	2	6	15	34 S 24 E	70.0	1.86
Gya	29.705	82.3	10	5	23	20	18	2	5	5	31	29 S 61 E	50.9	3.45
Patna	29.716	84.3	4	8	13	13	2	4	8	0	59	9 N 79 E	23.4	2.78
Monghyr	29.725	83.9	7	13	20	7	3	14	12	...	39	10 S 84 E	41.3	2.87
Darjeeling	29.776	81.4	...	1	16	13	11	16	45	17	1	59 S 66 W	...	2.10
Gowalparah	29.781	80.9	1	10	59	10	10	11	15	4	...	41 S 74 E	...	2.25
Shillong	29.713	80.8	2	1	8	5	11	7	16	5	65	15 S 43 W	54.5	1.17
Benares	29.738	84.1	4	...	2	25	13	14	8	15	37	23 S 19 W	59.9	3.82
Hoorkee	29.717	83.9	1	2	1	21	2	11	7	2	73	17 S 3 E	50.8	5.80

NOTE.

Barometric Pressure.—The pressures in column 2 of the above table for all stations below 500 feet are reduced from those given in column 3 of the table on the previous page by adding the weight of a column of air of the corresponding temperatures given in column 17. For stations of above 500 feet elevation, the reduction is made by Dippe's tables as given in Guyot's "Meteorological and Physical Tables." The temperatures at the sea-level are taken from column 3 of the above table.

Temperature.—The temperatures in column 3 are reduced from those in column 17 on the preceding page by adding 1° Fahr. for every 350 feet.

Wind Resultant.—The resultant wind direction and the comparative predominance are calculated from the whole number of wind observations recorded during the month. The relative predominance in the direction of the resultant is given as a percentage of the whole number of observations. The direction is computed in the usual way by Lambert's formula.

Serenity.—This column gives the average proportion of unclouded sky, a cloudless sky being indicated by 10 and one completely overcast by 0.

The above being all comparable, afford the data for constructing a meteorological chart for the month, which shall show the isobaric and isothermal lines and the resultant wind directions, which last may be represented by arrows of varying length, proportioned to the prevalence of the wind. To these may be added the rainfall from the previous tables.

CALCUTTA,
The 28th December 1872.

HENRY F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

**Results of the Meteorological Observations taken at the Surveyor-General's Office,
Calcutta, from 15th to 21st December 1872.**

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.	
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.			
Dec.	15th	Inches. 29.990	○ 78.0	○ 61.9	○ 132.0	○ 69.1	○ 63.9	○ 69.7	0.74	NE	...	58.0	...	...	Clear.
	16th	30.041	79.0	62.6	131.8	69.8	64.9	61.0	.75	NE	...	67.6	...	...	Clear and cumuli.
	17th	.091	78.0	63.0	131.0	69.8	65.3	61.7	.77	NE	...	39.7	...	...	Clear and cumuli; slightly foggy at 8 and 9 P.M.
	18th	.040	79.5	63.0	130.2	70.4	65.8	62.1	.76	E N E & W N W	...	25.5	...	...	Chiefly clear; slightly foggy from 5 to 8 A.M.
	19th	.018	80.0	64.3	130.8	70.9	66.2	62.4	.70	W N W & N NE	...	65.2	...	...	Clear and cirrocumuli; slightly foggy at 10 and 11 P.M.
	20th	.021	80.5	63.5	134.8	71.1	65.8	61.6	.73	N N E & N W	...	64.3	...	...	Clear; slightly foggy at midnight.
	21st	.009	80.0	63.5	135.5	70.7	64.4	69.4	.69	N W, N N W, & W N W	...	56.2	...	...	Clear, and cirri; slightly foggy at 11 P.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	18.6
The max. temperature during the past seven days	...	80.5
The max. temperature during the corresponding period of the past year	...	78.0
The mean humidity during the past seven days	...	0.74
The mean humidity during the corresponding period of the past year	...	0.72
		Inches.
The total fall of rain from 15th to 21st	... { by lower rain gauge	Nil.
	... { by anemometer gauge	Nil.
Ditto ditto ditto	average of eighteen previous years	0.01
Ditto ditto between the 1st January and the 21st December		51.05
Ditto ditto ditto	ditto, average of eighteen previous years	70.01

GOPENAATH SEN,
In charge of the Observatory.

The 28th December 1872.

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 21st December 1872, on 1,280 miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	100,307	1,84,697 6 7	16,080 11 11	751,367 10	4,39,277 11 0	40,267 2 6	57,197 14 5
Or per mile of railway ... ..	.....	144 4 8	13 4 7	.....	343 3 0	31 0 2	44 13 9
For previous 24 weeks of half-year	2,588,215	33,20,451 0 11	304,374 13 7	11,820,370 30	65,50,042 11 3	601,328 1 7	905,702 15 2
Total for 25 weeks	2,438,522	35,05,148 7 6	321,305 5 6	12,571,738 0	69,09,320 6 0	641,593 4 1	962,900 9 7
COMPARISON.							
Total for corresponding week of previous year	102,313	1,62,034 3 9	14,935 12 9	682,000 30	4,41,821 4 0	40,500 5 8	55,425 18 5
Per mile of railway corresponding week of previous year ... ..	.....	127 4 8	11 13 4	.....	343 2 9	31 12 10	43 6 2
Total to corresponding date of previous year	2,380,102	34,04,998 14 6	312,124 18 0	11,052,034 0	72,72,143 11 0	606,613 1 6	878,737 19 6

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 21st December 1872, on 223½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	3,958	25,894 14 8	2,373 14 0	60,765 0	18,591 4 0	1,704 4 1	4,077 18 1
Or per mile of railway ... ..	.....	115 13 9	10 12 5	.....	83 2 11	7 12 6	18 4 11
For previous 24 weeks of half-year	113,066	3,00,491 0 10	27,545 1 3	917,808 30	2,87,320 6 6	26,338 10 7	53,858 11 10
Total for 25 weeks	117,024	3,26,386 8 6	29,918 15 3	978,573 30	3,05,920 11 3	28,042 14 8	57,961 9 11
COMPARISON.							
Total for corresponding week of previous year	5,579	16,017 0 6	1,468 5 7	69,756 30	17,410 6 9	1,595 19 2	3,064 4 9
Per mile of railway corresponding week of previous year ... ..	.....	71 13 3	6 11 8	.....	78 1 2	7 3 2	13 14 10
Total to corresponding date of previous year	104,694	3,28,462 5 0	30,100 0 11	1,073,635 30	3,02,328 12 7	27,713 9 4	57,922 10 2

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 21st December 1872, on 28 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	7,216½	1,093 0 0	106 6 0	24,524 0	824 0 0	82 8 0	188 14 0
Or per mile of railway	258	38 0 0	3 16 0	876 0	29 0 0	2 18 0	6 14 0
For previous 24 weeks of half-year	129,749	20,538 0 0	2,033 10 0	520,558 0	10,230 0 0	1,023 0 0	3,066 16 0
Total for 25 weeks	136,965½	21,401 0 0	2,140 2 0	545,082 0	11,054 0 0	1,105 8 0	3,245 10 0
COMPARISON.							
Total for corresponding week of previous year	6,604½	933 7 0	93 6 10	9,059 0	282 1 3	28 4 2	122 11 0
Per mile of railway corresponding week of previous year	236	34 0 10	3 1 8	340 0	10 1 2	1 0 2	4 8 3
Total to corresponding date of previous year	109,846½	17,255 12 0	1,723 11 8	240,310 6	7,832 9 3	788 5 6	2,513 17 4

NALHATI STATE RAILWAY.

Approximate Return of Traffic for week ended 21st December 1872, on 27½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	1,559	1,204 0 0	120 8 0	5,736 0	572 0 0	57 4 0	177 12 0
Or per mile of railway	56½	44 0 0	4 8 0	210 0	21 0 0	2 2 0	6 10 0
For previous 24 weeks of half-year	25,578½	19,489 0 0	1,948 16 0	77,909 0	6,050 0 0	600 12 0	2,048 8 0
Total for 25 weeks	27,100½	20,692 0 0	2,069 4 0	83,705 0	7,568 0 0	756 16 0	2,826 0 0
COMPARISON.							
Total for corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....

GENERAL ESTABLISHMENT.—No. 436.—The 9th December 1872.

Statement showing heights over mean sea level and low water on Rivers Ganges and Bhagirathi during the month of November 1872.

Date.	RIVER GANGES.											
	Benares.	Barar.	Dinapore.	Monghyr.	Sahibgunge.	Rampore Beaulah.	Goutundo.	Derhampore.	Kishnaghur.			
Miles.	90.	177.	87.	287.	381.	471.	581.	180.	70.			
Distance.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.	From Benares.		
	Height over low water.	Height over mean sea level.	Height over low water.	Height over mean sea level.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over mean sea level.		
1st	9.6	175.48		110.51			12.75	21.69	14.7	46.98	12.3	21.04
2nd	9.3	175.23		110.43			12.42	21.36	13.11	46.31	11.8	20.45
3rd	9.1	175.07		110.35			12.25	21.19	13.3	45.64	11.1	19.87
4th	8.11	174.80		110.18			12.08	21.02	12.8	45.06	10.5	19.20
5th	8.10	174.82		109.93			11.83	20.77	12.2	44.56	9.8	18.45
6th	8.8	174.5		109.85			11.50	20.44	11.9	44.14	9.0	17.79
7th	8.8	174.48		109.60			11.16	20.10	11.4	43.72	8.4	17.12
8th	8.5	174.40		109.43			10.92	19.85	11.0	43.30	7.3	16.43
9th	8.4	174.32		109.18			10.60	19.44	10.8	42.88	7.4	16.12
10th	8.2	174.15		109.01			10.16	19.10	10.5	42.50	7.0	15.79
11th	8.0	173.98		108.85			9.92	18.86	10.2	42.14	6.6	15.58
12th	7.10	173.82		108.76			9.50	18.44	10.0	41.80	6.2	15.20
13th	7.9	173.73		108.60			9.50	18.41	9.9	41.50	6.5	15.20
14th	7.7	173.57		108.35			9.25	18.19	9.7	41.98	6.2	14.95
15th	7.6	173.48		108.35			9.00	17.94	9.5	41.80	6.1	14.87
16th	7.4	173.32		108.18			8.75	17.69	9.2	41.54	5.10	14.62
17th	7.3	173.24		108.10			8.50	17.44	8.11	41.31	5.9	14.54
18th	7.2	173.16		107.98			8.25	17.19	8.9	41.14	6.7	14.37
19th	7.1	173.07		107.85			8.00	16.94	8.6	40.80	6.4	14.12
20th	7.0	172.98		107.76			7.83	16.77	8.4	40.73.	5.1	13.87
1st	7.0	172.98		107.68			7.58	16.52	8.3	40.65	5.1	13.87
2nd	6.11	172.80		107.51			7.33	16.27	8.1	40.48	5.0	13.79
3rd	6.11	172.80		107.43			7.08	16.02	7.11	40.31	4.11	13.70
4th	6.10	172.62		107.35			6.92	15.86	7.9	40.14	4.10	13.62
5th	6.9	172.74		107.18			6.67	15.61	7.8	40.08	4.8	13.45
6th	6.9	172.74		107.10			6.50	15.44	7.6	39.90	4.7	13.37
7th	6.8	172.65		107.01			6.25	15.19	7.4	39.73	4.6	13.20
8th	6.7	172.58		106.93			6.16	15.10	7.2	39.56	4.5	13.20
9th	6.7	172.58		106.85			6.16	15.10	7.0	39.40	4.2	12.96
10th	6.7	172.58		106.85			6.16	15.10	6.11	39.31	4.2	12.95

Gauge destroyed

Not received.

Gauge destroyed

Not received.

H. LEONARD, C.E.,
Offg. Secy. to the Govt. of Bengal, R. W. D.



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, JANUARY 8, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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DEPUTY AND SUB-INSPECTORS OF SCHOOLS IN BENGAL.

(RESOLUTION.)

GENERAL DEPARTMENT.

EDUCATION.

Calcutta, the 7th January 1873.

READ—

The orders of Government of to-day's date,—

- (1) circulating a list of the inspecting officers of the Educational Department attached to every district in Bengal;
- (2) conveying an expression of the Lieutenant-Governor's views on the Midnapore Magistrate's scheme for improving the primary schools of Midnapore by paying the existing school-masters by results.

1. The Lieutenant-Governor has desired that these papers should be circulated to all Magistrate-Collectors with an expression of his hope that they, the District Committees and their subordinates, will do what may be possible to carry out the views of Government in such way as the present condition of primary education in each district may dictate. He feels confident that the Commissioners and Circle Inspectors will do their best to guide and advise the District Officers and District Committees.

2. The Lieutenant-Governor has agreed, on the representation of the Commissioner of the Orissa Division, to the appointment of a Joint-Inspector of Schools for the Orissa Division with head-quarters at Cuttack.

3. The Lieutenant-Governor has directed that the Subordinate Inspecting Officers of each district be called Sub-Inspectors, in order to make clear that they are subordinate to the District Committee and the Magistrate, and must take instructions either from the sub-divisional officer or from the Deputy Inspector of the district.

4. The Lieutenant-Governor would draw the especial attention of all district officers to his desire, expressed in these papers, not to tie down district officers to any one or more plans of promoting primary education. The grant made is to be spent to the best advantage. In some districts it may often be desirable that a part of the primary school grant should be devoted to providing decent school-houses for village schools; ordinarily a decent, open thatched shed, built mainly of bamboos, would suffice. At present our patshalas are sometimes crowded into dark unpleasant hovels.

5. The Lieutenant-Governor would further repeat, what has already been said, that as municipal schools may hereafter be arranged for on different principles, it is desirable that the money now available should be spent as far as possible in villages and not in towns.

No. 73, dated Calcutta, the 7th January 1873.

From—C. BERNARD, Esq., Offg. Secy. to the Govt. of Bengal in the General Dept.
To—All Commissioners.

I AM directed to forward the annexed list, prepared by the Director of Public Instruction, in communication with this office, showing the names, salaries, and distribution of the Deputy and Sub-Inspectors of Schools attached to each district.

2. The general scheme of the redistribution has been to allot one Deputy Inspector on from Rs. 100 to Rs. 200 a month to every district, with the exception of a few small, sparsely peopled districts in Assam or elsewhere. The Deputy Inspectors of very large districts with several sub-divisions will be, if possible, men on salaries of Rs. 150 to Rs. 200 a month. For the very small districts, and, as far as possible, for every sub-division, a Sub-Inspector will be appointed. Where the head-quarters sub-division is very large, or has many schools, a Sub-Inspector will be allowed for the head-quarters division. All new Sub-Inspectors will be appointed on either Rs. 30 or Rs. 40 a month, and may rise to a maximum of Rs. 50. The Commissioner will decide in each case whether the nominee should begin on Rs. 30 or Rs. 40 a month. Appointments to such posts will be made by the Magistrate subject to the Commissioner's approval. The Educational Department will give any assistance in finding men that may be asked of them. At the outset, and until the system is in working order, additional Deputy Inspectors are attached to the large districts of Burdwan, Nuddea, and Dacca, either because schools are in those districts specially numerous, or because the present incumbents cannot well be provided for elsewhere. Hereafter, as vacancies occur, the staff of each district will consist of one Deputy Inspector with a sufficient number of Sub-Inspectors under him.

3. For the Orissa division a Joint-Inspector on Rs. 250 is sanctioned; and the appointment will be filled as soon as the views of the Commissioner shall have been ascertained.

4. The distribution of Deputy Inspectors and Sub-Inspectors is not to be considered as final, for it will be liable to reconsideration as primary schools multiply in the more backward districts, and when the District Officers better know their men. For instance, the great districts of Mymensing, Backergunge, and Sylhet, have at present very few schools, and therefore their staff of Inspecting officers is at present small. When

schools in those districts increase, further Sub-Inspectors may be required. Meanwhile the existing staff is distributed as well as circumstances will admit. The Deputy Inspectors and Sub-Inspectors have been arranged so that nowhere except in Assam will a Deputy Inspector have any charge outside the district where he may be stationed. Magistrates will have discretion to alter the head-quarters of any Sub-Inspector or Additional Inspector with the Commissioner's sanction. In those cases where the Sub-Inspector of a sub-division does not reside at the sub-divisional station he should be at once transferred to the sub-divisional head-quarters. Any redistribution sanctioned by the Commissioner should be reported to the Director for publication in the next quarterly Civil List.

5. Deputy Inspectors will draw travelling allowance as heretofore at the rate of—

4 annas a mile for journeys by dâk.
 $1\frac{1}{2}$ " " " " by rail.
 1 rupee a day for halts.

Sub-Inspectors and Additional Inspectors will hercafter draw travelling allowance at the rate of—

• 3 annas a mile by dâk.
 • 1 anna a mile by rail.
 • 8 annas per diem for halt.

For Sub-Inspectors of river districts, who have to travel by boat, a special boat allowance of not more than Rs. 40 a month may be sanctioned by the Commissioner for so long as they are on tour and are obliged to keep up a boat. In addition to the boat allowance, no other travelling allowance can be passed.

• 6. Any reference to Government regarding additional inspecting agency, or on other matters regarding the working of these instructions, should be made by Commissioners through the Director of Public Instruction.

Names, Salaries, and distribution of the Deputy and Sub-Inspectors of Schools attached to each district.

Districts.	Names of Deputy Inspectors.	Grade.	Present Head-Quarters.	REMARKS.
BURDWAN DIVISION.				
BURDWAN	Paramananda Mukherji	Deputy Inspector, 1st grade, on	Burdwan.	This 2nd grade Deputy Inspector cannot conveniently be removed at present to another district, and some consideration is due to him as his home is in his present district, to which he was transferred after service in several other zillahs. To be transferred from Midnapore.
	Charu Chandra Chatterji	Additional Deputy Inspector, 2nd grade, on	Cuttwa "	
	Sarus Chandra Chatterji	Sub-Inspector, on	150 Rancoonj.	
BANGORAH	Mohesh Chandra Chatterji	Ditto, " " " "	100 Hoodbeed.	
	Sripati Banerji	Ditto, " " " "	75 Culha.	
	Ram Krishna Chatterji	Ditto, " " " "	75 Burdwan	
BEERBOOM	Virja Ballabh Mitra	Ditto, " " " "	75 Jehanabad.	
	Siv Das Bhattacharya	Deputy Inspector, 3rd grade, on	100 Bancoorah.	
MIDNAPORE	Bishnu Chandra Mukherji	Ditto, " " " "	200 Sooree.	An additional Inspecting Officer may be appointed.
	Vacant	Sub-Inspector, on	" " " " " " " " " "	
	Rajkishna Ray Chaudhuri	Deputy Inspector, 2nd grade, on	150 Midnapore.	
HOOGHLY	Nil Madhav Banerji	Sub-Inspector, on	75 Ditto.	
	Khetra Mohan Sen, Gupta	Ditto, " " " "	75 Tumbok.	
	Durga Pra-anna Mukherji	Ditto, " " " "	75 Garhetta.	
	Hari Charan Das	Ditto, " " " "	75 Contai.	
HOWRAH	Ambica Charan Basu	Deputy Inspector, 3rd grade, on	100 Hooghly.	An additional man required to start new patshallas.
	Nava Gopal Mukherji	Sub-Inspector, on	75 Serampore.	
24-PERGENNAS AND CALCUTTA	Madhav Chandra Tarkisiddhanta	Deputy Inspector, 2nd grade, on	150 Howrah.	
	Vacant	Sub-Inspector, on	Oolbaria " " " "	
	Jagat Chandra Banerji	Deputy Inspector, 1st grade, on	200 Calcutta.	
NUDDEA	Harra Mohan Bhattacharya	Sub-Inspector, on	100 Nakulilanga, for Diamond Harbour, sub-division.	
	Kali Narayan Raha	Ditto, " " " "	75 Govindanga, for sub-division of Busserehat and Satkhira.	
	Vacant	Ditto, " " " "	" " " " " " " " " "	
NUDDEA	Vacant	Ditto, " " " "	" " " " " " " " " "	
	Sripati Mukherji	Deputy Inspector, 2nd grade, on	150 Krishnachur.	
	Mohendra Nath Ray	Additional Deputy Inspector, 2nd grade, on	160 Kancharara, for sub-division of Raunaghat.	
	Nilmadhav Mukherji	Ditto ditto	75 Murgacha, for sub-division of Melurpur.	
NUDDEA	Gauri Sankar Ghosal	Ditto ditto	75 Bongong, fo. sub-division of Bongong and Chuadanga.	
	Rajendra Purkait	Ditto ditto	75 Kushba, for sub-division.	

PRIMARY SCHOOLS IN MIDNAPORE.

No. 94, dated Burdwan, the 28th December 1872.

From—C. T. BUCKLAND, Esq., Commissioner of the Burdwan Division.
To—The Offg. Secretary to the Government of Bengal, Revenue Dept.

I HAVE the honor to submit in original a report from Mr. H. L. Harrison, the Officiating Magistrate of Midnapore, forwarding a proposal for promoting primary education in that district in accordance with the Government resolution of the 30th September last, and beg to state that I should have submitted it sooner if it had not been for the lamented death of Mr. Martin, the late Inspector of Schools. I have reason to know that Mr. Harrison's proposals had Mr. Martin's concurrence and approval, and I believe that they will also be sanctioned by the Lieutenant-Governor, who has already expressed himself in favour of the scheme of payment by results.

2. Mr. Harrison will be reminded that there are some Wards' estates in the Midnapore district in which, although they are generally small, some new patshalas may, if possible, be opened

3. With reference to paragraph 9 of Mr. Harrison's letter proposing to establish a normal class in connection with the present normal school for patshala gurus, I should also wish to have authority to devote a portion of the money to the opening of a medical class in connection with it, so that the knowledge of the art of administering European drugs, according to the principles of European medical science, may be more widely disseminated, and the ignorance and prejudices of the people of Midnapore on the subject of European medicines, which seem still to be considerable, may be to some extent removed.

4. I have requested Mr. Harrison to submit his scheme to the district education committee, as I understood this course to be prescribed by paragraph 15 of the Government resolution, which declares that the Magistrate is to act with the advice of, but not to be controlled by, the district committee, and this course seems to me to be also dictated both by courtesy and good policy, as the committee would be more likely to support a plan on which they have been consulted, than one which had been adopted and introduced on the Magistrate's sole authority.

No. 11T, dated Camp Gurbetta, the 13th November 1872.

From—H. L. HARRISON, Esq., Offg. Magistrate of Midnapore.
To—The Commissioner of the Burdwan Division.

WITH reference to the Government letter No. 3521A,4, dated the 30th September 1872, and to your circular No. 144, received this date, I have the honor to forward the following proposal for promoting primary education in this district in accordance with the Government resolution of the 30th September last.

2. From appendix A it appears that Midnapore has assigned to it a grant of Rs. 3,800 for the remainder of the current year, and of Rs. 11,400 for 1873-74, while from appendix B it appears that with this money 250 additional patshalas ought to be opened.

3. This number, however, seems to have been fixed on a general principle and not with any reference to the existing state of education in this district, and from paragraphs 11 and 12 of the resolution I am led to infer that it will not be contrary to the wishes of Government if in this district endeavours are rather directed towards taking up and utilizing existing agency than to establishing absolutely new schools.

4. It will be seen from appendix B that Midnapore already has 1,943 schools, a far larger number than any other district in Bengal except Cuttack, and that of these over 1,700 are indigenous patshalas. If the entire grant therefore were spent on establishing more patshalas, it would only increase the existing number by about 15 per cent.; moreover, it would probably cause many of the indigenous schools to close in the hope of re-opening as Government patshalas; at any rate it would create a sense of injustice in the minds of the present gurus and of the villagers among whom they labour, if it were made to appear that by having done something for themselves they have thereby lost the chance of being helped by Government.

5. I propose then to use the grant principally in inducing the numerous existing patshalas to place themselves under general control and direction, reserving a portion only for opening Government patshalas in localities where comparatively few or none already

exist; and to direct my endeavours (1) to obtaining quarterly returns from these patshalas showing the number of boys, and what they learn; (2) to inducing them to place themselves under inspection; (3) to organizing a means of modifying the system and subjects of study when found advisable and of improving the *future* gurus.

6. For this purpose I propose to give a rupee per return, or Rs. 4 per annum, to all gurus who submit such returns in a very simple form to be prescribed. They may submit it either by post or to the police station whichever they prefer.

7. Next, I propose to allow all patshalas which agree to place themselves under inspection, the right of sending up candidates for the primary scholarships; and as a further inducement, to allow at each annual inspection a certain sum to be paid for each boy who can read, write, do simple arithmetic, zemindari accounts, and simple mensuration. The amount would depend on the number of schools which come in under these terms, and instead of pressing the older gurus to teach mensuration (say) against their will, I would merely allow a liberal sum for all boys who show proficiency in its essential rudiments and thereby lead them to take to it for self-interest.

8. Supposing for instance that 1,000 indigenous patshalas out of the 1,700 place themselves under control and inspection on these terms, for submitting quarterly returns they would each get Rs. 4 per annum. Say that 2 annas were allowed for each boy that could read, 2 annas for each that could write, 4 annas for arithmetic, 8 annas for zemindari accounts, and 1 rupee for mensuration, and say that as an *average* each patshala had five boys that could read and write, two that could do arithmetic, one that could do zemindari accounts, and one mensuration, the cost would be—

				P.	A.	Rs.
For returns	...	...	Rs. 4-0	×	1,000	4,000
„ reading	...	...	0-2 As	×	5 × 1,000 = 10,000	625
„ writing	...	...	0-2 „	×	5 × 1,000 = 10,000	625
„ arithmetic	...	...	0-4 „	×	2 × 1,000 = 6,000	375
„ zemindari accounts	...	...	0-8 „	×	1 × 1,000 = 8,000	500
„ mensuration	..	...	Rs. 1-0	×	1 × 1,000 =	1,000
Total						7,125

This would leave a margin of over Rs. 4,000 for other purposes, and I would fix the allowance for reading, writing, and other subjects with special reference to the numbers estimated as likely to come forward so as to leave about the sums named for other purposes.

3. With this sum I propose (1) to found a certain number of new schools with grants of about Rs. 30 per annum; (2) to establish a normal class in connection with the present normal school for patshala gurus, at which I hope to train sufficient gurus to supply the indigenous schools which become vacant in the ordinary course.

10. Though the sum I can thus award each indigenous school is very small, I hope that it will be a tangible inducement, because it will be too obviously insufficient to induce the people to diminish their payments in consequence. There is no doubt (I have even heard instances in my present tour) that they contribute in a much more niggardly manner to *stipendiary* gurus than they do to those unpaid by Government, and a guru who comes under Government pay usually loses somewhat in his other income.

11. In this district we shall now have patshalas established under the improved patshala system, Sonthal patshalas under Dr. Phillips, and now indigenous patshalas, all intended to extend over the same field of education, and in course of time it will, I think, be necessary gradually to unify them; but I propose at first to leave them side by side untouched, so that each system may be fairly tried before any such steps are taken.

12. I also venture to express an opinion that even the indigenous schools now proposed to be taken in hand will have to be lowered, not in quality of education, but in the object aimed at by the students before the goal aimed at in paragraph 10 of the report is attained. Even the pupils of indigenous schools mainly aim at becoming clerks, attorneys, *et hoc genus omne*, and the great difficulty I apprehend is the recoil that will be felt when it first becomes clearly apparent that Government has resolutely set its face against primary education being abused for that purpose. Till this, however, is overcome, the first real step in promoting primary education will not have been surmounted, and you may therefore rely on my using my best endeavours to overcome it. This view may be more readily accepted when it is recollected that even in Midnapore under 20,000 children attend school including the 1,700 indigenous schools, while the total number of boys is over 450,000. Those who read mostly represent the castes and classes who aim at obtaining sedentary occupations of some sort or other, that is, go in for secondary education truly so called.

No. 74, dated Calcutta, the 6th January 1878.

From—The Offg. Secretary to the Govt. of Bengal in the General Department.

To—The Commissioner of the Burdwan Division.

I AM directed to acknowledge the receipt of your letter No. 94, dated 28th December 1872, forwarding a letter from Mr. H. L. Harrison, Magistrate of Midnapore, containing a proposal for the promotion of primary education in the district of Midnapore.

2. In reply, I am to say that the Lieutenant-Governor is of opinion that the district education committee should be consulted on the subject as you suggest. If they agree, then His Honor would gladly accept Mr. Harrison's proposal, and trusts that he and his Deputy and Sub-Inspectors will occupy themselves actively in carrying it out. The system payment by results is undoubtedly in the circumstances of the district of Midnapore, the best, if only it can be well carried out, and the Lieutenant-Governor is sure that Mr. Harrison will give his attention to it, and it will have the fairest trial in his hands.

3. On the whole subject of education His Honor is anxious not to tie district officers down too tightly to any particular plan. He would give much latitude with reference to the circumstances of each district, and the various forms in which we may try to obtain success in a great undertaking which is yet but in the stage of experiment. The Lieutenant-Governor quite thinks that, speaking generally, such a system as Mr. Harrison proposes for encouraging and extending existing schools on a payment by result system will be the best in the districts of Western Bengal and Orissa, where indigenous schools are already numerous. In many other districts where indigenous schools are very few, the bulk of our money and the strength of our energies should be mainly devoted to establishing new schools. In any case, success will entirely depend on the personal energy and devotion of the officers engaged in the work; His Honor trusts that district and sub-divisional officers will not only themselves sketch out plans and stimulate their execution, but, remembering that they cannot do everything themselves, will utilize to the very utmost the Deputy and Sub-Inspectors placed at their disposal. The Lieutenant-Governor particularly trusts that the latter officers, whether they have or have not departmental prejudices, remembering that they are employed by Government to carry out the new system, will do so zealously and earnestly. Upon their success or failure must in the end depend. His Honor will not tolerate any lukewarmness, far less any obstructiveness; but on the other hand if, as the Lieutenant-Governor trusts they will, they throw themselves heartily into the work undertaken by Government, and are successful in their efforts to bring it to a successful issue in their respective circles, the fullest credit will be given to them, and their advancement will follow their merits in this respect.

4. The Lieutenant-Governor is deeply sensible of the difficulty suggested in the 12th paragraph of Mr. Harrison's letter, but that is a difficulty which affects all attempts to educate the people, and does not belong to any particular scheme. If we were to yield to this difficulty, we must say that the people are to go uneducated, lest they should come to dislike manual labor. It is undoubtedly the case in this country that we are at present constantly involved in disheartening dilemmas due to this cause; that is to say, people who are uneducated cannot work intelligently, and people who are educated will not work. An attempt was made to train up educated young men in the Botanical Gardens, but as soon as they knew a little English they went off to be clerks, preferring a writer's career to being superior gardeners. In the artizan school at Benree, which is an extraordinary success for boys of European extraction, the Lieutenant-Governor is told that natives cannot be got even on the very favourable terms on which education and instruction are given, because the sons of blacksmiths and masons have not the primary education which is required to begin with, while the boys who can read and write go off as soon as they are sent to the workshops to learn the manual part of the business. Still, we must not give up the attempt to get over these difficulties. The Lieutenant-Governor believes it is because education is so rare that all educated youths

think they should rise above their proper level. If we succeed in making education more general, they will find that they can no longer expect thus to rise. They will, it may be hoped, learn to value the benefits of primary education in their own sphere of life, and in many cases they may rise above it if they will work; for instance, if the son of a blacksmith can read and write he may not disdain to join an artizan school, and combining education with manual skill may rise to be an artizan of a high class, or even be a mechanical engineer. His Honor is not without hope that Bengalis may be the first to shake off the trammels of caste and tradition, and if he sees any prospect of a demand for it, he shall certainly try in Bengal such an artizan school as has been tried at Dehree.

5. As for the medical class at the normal school, I am to request that you will be good enough to submit further particulars and proposals as to the teachers, the subjects to be taught, and the extent to which lessons in medicine should go.

AUDITORS' REPORT ON THE PORT COMMISSIONERS' ACCOUNTS FOR THE LAST HALF YEAR.

No. 1906, dated Calcutta, the 30th November 1872.

From—W. D. BRUCE, Esq., Vice-Chairman to the Commissioners for making Improvements in the Port of Calcutta.

To—The Offg. Secy. to the Govt. of Bengal, General Department.

I HAVE the honor to forward herewith, for the information of His Honor the Lieutenant-Governor, and for publication in the *Calcutta Gazette*, the accompanying copy of the report of the Auditors on the accounts of the Commissioners for the half-year ending 30th September last, together with the accounts duly passed and signed by the Auditors.

With reference to the suggestion made in paragraph 2 of the Auditors' report in regard to a reserve fund for the wharves and jetties, the Commissioners desire to submit, for His Honor's consideration, that while they have only expended Rs. 10,64,776 of borrowed capital, viz. Rs. 10,00,000 advanced by Government, and Rs. 64,776 taken temporarily as a loan from the River Division, they have expended on new works the sum of Rs. 18,08,082, the difference of Rs. 7,43,306 being met from net earnings. The Commissioners are therefore of opinion that in suggesting the accumulation of a reserve fund for the wharves and jetties similar to that which is being accumulated for the River Division, the different conditions under which the two debts have been incurred have not been sufficiently considered. Provision will be made for the repayment of the loan on account of wharves and jetties whenever repayment falls due, such repayment being met from the profits accruing from the works already constructed. In the meantime the profits already received from the wharves and jetties which might have been invested in Government securities, or which might have been applied to the earlier repayment of capital under the provisions of section 10 of the Port Improvement Act, have been invested in extending the works and so providing additional sources of profit. As these extensions and the increased revenue derived therefrom have involved no addition to the debt and no liability for interest, the Commissioners are of opinion that the purpose for which a reserve fund is required has in a manner been served, and that there is therefore no necessity for the accumulation of a reserve fund similar to that which has been accumulated for the River Division, the debt on account of which is only a book debt, and is represented by property, which is supposed to be kept always equal in value to the amount of the debt.

No. 109A, dated Calcutta, the 18th November 1872.

From—Messrs. HUGH SANDEMAN and E. W. KYLLNER, Auditors of the Accounts of the Commrs. for making Improvements in the Port of Calcutta.

To—The Commissioners for making Improvements in the Port of Calcutta.

WE have examined your accounts for the half-year ended 30th September 1872, and have found them to be correct. They show the following results:—

	Wharves, Jetties and Strand Block Division	River Division	Total
<i>Receipts</i>			
Net revenue realized	Rs. 1,31,195	Rs. 72,340	Rs. 2,03,535
Debt incurred	1,70,000	Nil	1,70,000
Expended from cash balance	1,000	77,987	1,88,987
Advances recovered	Nil	10	10
Deposits received	3,550	254	3,804
Total	4,07,148	1,00,000	5,07,148
<i>Expenditure</i>			
Capital outlay	1,01,171	Nil	1,01,171
Advances made	17	1,50,000	1,50,017
Total	4,09,148	1,50,000	5,59,148

The net revenue in the Wharves and Jetties Division is the largest sum yet realized on that account. On the other hand, the earnings of the River Division are less than those of the preceding half-year by Rs. 27,019 in consequence of an outlay of Rs. 28,912 on renewal of a portion of the block of the port, there being no corresponding charge of the same character in the previous six months. This charge will now recur during every half-year with reference to your resolution dated 20th September 1872, providing for a wear-and-tear account, as suggested in our last report. The debt incurred is a temporary advance from the River to the Wharves Division, on the same rate of interest as is allowed on the loans from Government. We understand that your proceedings in reference to this advance have been submitted to Government in accordance with section 29, Act V (B.C.) of 1870. The other items do not appear to call for remark, except that it may be questioned whether it would not be prudent to create a reserve fund for the wharves and jetties in place of investing all the surplus accruing from them in their extension.

2. You now have two debts; one of which, relating to the wharves and jetties, is re-payable in 30 years, while the other, relating to the river, is a perpetual loan. In connection with the first debt, you have neither a reserve fund nor a wear-and-tear account, while you have both in connection with the second. We admit that the condition of repayment removes the necessity of a wear-and-tear account, but it in no way affects the question of a reserve fund, which in our opinion is equally required for both divisions of the trust. We accordingly suggest for your consideration the advisability of creating a reserve fund for the wharves and jetties equivalent to (say) 10 per cent. on the capital outlay upon them.

3. The following figures describe your financial position as on 30th September 1872:—

DESCRIPTION OF ITEMS	Wharves, Jetties and Strand Block Division	River	Total
<i>Liabilities</i>			
Capital debt	Rs. 10,00,000	Rs. 17,65,000	Rs. 27,65,000
Temporary loan	1,00,000	Nil	1,00,000
Net earnings	7,38,13	4,18,951	11,57,084
Uninvested interest of Reserve Fund	Nil	6,708	6,708
Deposits repayable	1,730	253	4,583
Total	18,09,123	21,90,913	40,00,036
<i>Assets</i>			
Value of block	18,08,082	17,00,000	35,08,082
Temporary loan	Nil	1,50,000	1,50,000
Reserve Fund	Nil	2,08,250	2,08,250
Outstanding advances	17	0	17
Cash balance	8,000	67,011	1,52,807
Total	18,08,123	21,90,913	40,00,036

The system of book-keeping which you introduced in the beginning of the half-year on our recommendation, has worked satisfactorily.

COMMISSIONERS FOR MAKING IMPROVEMENTS IN THE PORT OF CALCUTTA.
Statement of Income and Expenditure of Wharves and Jetties and Strand Bank lots for the half-year ending 30th September 1872.

REVENUE—		INCOME.		Rs.	A. P.	Rs.	A. P.	Rs.	A. P.		
COLLECTION OF HALF-YEAR—											
Balance of collection received from Accountant-General						3,539	7	1			
JETTIES	Consignees	Landing charges	Removal charges and warehouse rent	1,53,523	12	5					
			Jetty hire	37,305	11	6					
			Hoisting charges	12,555	5	0					
			Damages	3,068	7	3					
			Overtime	2	0	0					
	Vessels			2,06,453	4	2					
				5,110	7	3					
				2,11,563	11	5					
From inland vessels between Ahireetollah and Juggernath Ghat				59,510	0	0					
From inland vessels between No. 7 Jetty and Colvin's Ghat				32,011	3	0					
SALES	Material			32	1	0					
		Machinery		0	0	0					
		Plant		0	0	0					
Collections for half year's Strand Bank rent						3,03,125	15	5			
Loan from Port Proper deposit						41,242	1	9			
									3,47,907	8	5
									1,50,000	0	0
									3,549	14	1
									5,01,457	6	4
									1,46,123	9	11
									6,47,581	0	3
		Balance of previous year									
		Total									
EXPENDITURE.											
REVENUE—											
Interest						22,500	0	0			
Ditto on loan from Port Proper						1,227	13	2			
REPAIRS—											
Wharves and Jetties				10,323	11	4					
Machinery and Plant				4,576	5	7					
						14,900	0	11			
SALARIES—											
Control				17,039	15	11					
Contingencies				458	0	0					
						18,398	0	8			
Jetty collecting department				1,479	1	9					
Contingencies				124	10	0					
						1,603	11	9			
Engineering				8,413	10	0					
Contingencies				232	7	3					
						8,645	1	3			
Jetty office				6,879	7	3					
Contingencies				200	8	1					
						7,079	15	4			
Upper Wharf				8,008	2	5					
Contingencies				108	12	11					
						8,234	15	4			
Lower Wharf				4,604	0	5					
Contingencies				58	12	6					
						4,662	12	11			
Landing and delivery				25,215	3	7					
Crane establishment				12,754	2	3					
Ditto for 2 Cranes				409	5	7					
Guards for Jetties				1,806	0	0					
Ditto for upper Wharf				748	0	0					
Ditto for lower ditto				378	0	0					
Ditto contingencies				224	0	0					
Surgeon's salary				907	11	7					
Overtime				580	9	11					
						92,269	10	2			
Less amount debited to new works						8,646	1	3			
						83,623	8	11			
WORKING EXPENSES—											
Coolie labour				9,219	15	8					
Cranes				2,886	1	10					
Stationery and Printing				3,086	2	1					
Lighting charge				738	7	9					
Stores for sheds and trolleys				510	0	0					
Contingencies				290	11	11					
						16,736	7	3			
Municipal taxes						5,223	0	0			
						1,44,210	14	3			
New works Strand Bank lands				672	3	4					
Repairs ditto ditto				1,150	8	4					
Salaries ditto ditto				518	0	0					
Contingencies ditto ditto				93	2	4					
						611	2	4			
Municipal taxes ditto ditto						8,555	12	0			
						8,068	10	0			
Capital Wharves and Jetties						3,58,763	7	8			
Proportion of establishment						8,646	1	3			
Machinery and Plant						40,762	11	9			
									4,08,102	2	8
Stock									138	6	1
Miscellaneous advances									17	0	0
									5,62,357	4	0
									85,223	15	3
									6,47,581	0	3
		Balance on 30th September 1872									
		Total									

COMMISSIONERS FOR MAKING IMPROVEMENTS IN THE PORT OF CALCUTTA.
Statement of Income and Expenditure of Port Proper for the half-year ending 30th
September 1872.

INCOME.					
REVENUE—		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
COLLECTION OF HALF-YEAR—					
Mooring hire	...	1,83,744 0 0			
Harbour Masters' earnings	...	69,118 13 0			
Wreck and Anchor	...	11,550 0 10			
Moyapore Magazine	...	4,416 9 3			
Receipts from Government for collecting Pilotage and Port dues	...	7,000 0 0			
Sales of condemned stores	...	4,025 2 2			
Contribution from Government on account of River Police...	...	8,458 0 0			
<i>Lady Melville</i>	...	20,585 10 0			
Interest on loan to Port Proper	...		2,58,905 8 3		
Port Fund Fines	...		1,227 13 2		
			253 7 0		
Interest on Government Securities of Reserve Fund	...			2,60,386 7 5	
Miscellaneous advances	...			4,453 2 0	
Deposits	...			10 0 0	
				253 8 8	
				2,65,108 2 1	
				1,45,031 12 0	
Balance for previous year	...				
Total	...			4,10,184 4 1	
EXPENDITURE.					
REVENUE—					
New works	...		29,211 11 2		
Repairs	...		5,097 11 11		
Interest	...		39,712 8 0		
SALARIES—					
		Rs. A. P.	Rs. A. P.		
Commissioners' Fees	...		1,480 0 0		
Correspondence and accounts	...	7,866 4 7			
Contingencies	...	256 10 8			
			8,122 15 3		
Harbour Master's Department...	...	42,033 12 9			
Contingencies	...	480 8 3			
			42,514 5 0		
Heave-up boats	...		8,425 4 6		
Hawser boats	...		8,570 4 4		
Beaulahs	...		777 10 9		
Anchor and Mooring	...		2,281 12 4		
<i>Cavery, No. 2.</i>	...		1,786 8 0		
<i>Saugor</i>	...		1,783 8 0		
<i>Simpson</i>	...		1,612 10 0		
Reserve boat	...		189 0 0		
Fire Engine boat	...		2,818 8 4		
Moyapore Magazine	...	1,157 1 9			
Contingencies	...	97 4 0			
			1,254 5 9		
Surgeon's salary	...		735 8 0		
			82,352 4 3		
Pensions	...		2,500 8 11		
Gratualities	...		25 0 0		
			2,525 8 11		
WORKING EXPENSES—					
Stores, Heave-up boat	...		3,450 10 6		
Mooring boat	...		1,123 10 2		
Anchor boat	...		2,351 0 5		
Beaulahs	...		66 9 6		
Fire Engine	...		1,503 8 0		
Stationery and Printing	...		1,028 5 8		
			9,518 12 3		
Wreck and Anchor	...		3,221 7 11		
<i>Lady Melville</i>	...		8,719 13 7		
River Police establishment	...		13,136 7 8		
				1,92,491 5 8	
Loan to Wharves and Jetties	...			1,50,000 0 0	
				3,42,491 5 8	
Balance	...			67,643 8 5	
Total	...			4,10,184 14 1	

COMPTROLLER-GENERAL'S OFFICE,
Central Accounts Branch,
The 18th November 1872.

E. W. KELLNER,
Assistant Comptroller-General.

No. 4718, dated Calcutta, the 31st December 1872.

From—J. WARE EDGAR, Esq., Offg. Junior Secy. to the Govt. of Bengal,
To—The Vice-Chairman to the Commissioners for making Improvements in the
Port of Calcutta.

I AM directed to acknowledge the receipt of your letter No. 1906, dated 30th November, forwarding the Auditors' report on the Port Commissioners' accounts for the half-year ending the 30th September 1872.

2. I am to observe that the loan from the River Division to the Jetty Division of the port accounts being a departure from the sanctioned budget estimate, ought, under section 52 of "the Calcutta Port Improvement Act," to have been reported for the approval of the Lieutenant-Governor.

3. The arrangements (alluded to by the Auditors) whereby a depreciation account has been opened for the block transferred to the Port Commissioners, as Conservators of the port, have been approved by the Lieutenant-Governor. These arrangements were described in the Port Commissioners' proceedings thus—

Resolved.—That in reply to the communication from the Government of Bengal, No. 1936, dated 19th June 1872, forwarding the orders of the Government of India upon the question of depreciation, a letter be addressed to Government intimating—

- (1) That the Commissioners will open a depreciation account for the block transferred with the port, and in respect of which a book debt of Rs. 17,65,000 has been debited to the Commissioners.
- (2) That the Commissioners after careful consideration of the question have adopted the following scale of rates for the depreciation of the block of the port :—

Particulars.	Value of block.	Rate per annum.	Amount.
	Rs.		Rs.
Buoys	4,29,099	4 per cent.	17,163
Mooring chains, &c.	10,24,295	2½ „	25,607
Hawser-boats, beauleahs, and tank boat ...	38,237	6 „	2,294
All other floating block, &c.	2,00,920	5 „	10,046
Moyapore Magazine	72,419	.....	.....
	17,65,000	.....	55,110

- (3) That all renewals of block will be met from the fund accumulated by the adoption of the foregoing scale of rates, and that any surplus which may accrue from the scale being higher than the cost of renewal demands, shall be allowed to accumulate until it reaches a sum of two lakhs of rupees, after which the sum to be written off annually for depreciation shall be the exact amount spent in renewing the block.

In communicating this resolution to Government it should be pointed out that this formation of a depreciation fund is in addition to, and altogether independent of, the reserve fund of three and a half lakhs which is being accumulated under the orders of Government, and it should also be stated that the Commissioners are making inquiries with a view to ascertain whether an insurance could be effected at reasonable rates upon the boats and vessels belonging to the trust.

4. In regard to the Port Commissioners' remarks upon the inexpediency of opening a reserve fund for the wharves and jetties department, the Lieutenant-Governor quite admits that the Commissioners, by expending their income on permanent jetties, have laid out more money than was required for a reserve fund. But on the other hand it seems to the Lieutenant-Governor that money so laid out is spent and gone; and if a jetty were carried away or some very extensive damage done at any time, there might be no money in hand to replace it. His Honor, therefore, thinks it will be better to put by a sum for reserve fund as the Auditors propose. The result would be that the Commissioners would spend less income on permanent works and would borrow more for that purpose, but would always have a reserve in case of accident. The Lieutenant-Governor hopes that the Commissioners will agree to that plan, putting by a reserve fund equal to 10 per cent. of total expenditure as the

Auditors propose, and replacing any expenditure which it may at any time be necessary to make from this source.

5. I am to add that the Lieutenant-Governor congratulates the Commissioners on the satisfactory state of their finances.

LONDON AND VIENNA EXHIBITIONS.

Circular No. 6, dated International Exhibition Office, Bengal Secretariat, No. 1, Sadler Street, Calcutta, the 14th December 1872.

From—H. H. LOCKE, Esq., Secy. to the Bengal Committee for the London and Vienna International Exhibitions of 1873.

To—The Collector of

WITH reference to the section of the Exhibition programme noted in the margin, I am directed to ask the favour of your attention to the special points on which your co-operation with this Committee is desired, and to beg that speedy action may be taken upon the matter, as the time allowed for the despatch of specimens is very limited.

Substances used for food, drink, or smoking, with cooking utensils and appliances of all kinds used in eating, drinking, and smoking.

2. Many of the articles which are included within this section are of so perishable a nature that they cannot be sent to a distant country for exhibition; others are only procurable in particular seasons; in these cases no attempt should be made to collect actual specimens, but information may be obtained, and is required in as much detail as possible. Much of this information will, the Committee hope, be already at hand in your office, without the necessity of fresh compilation, in the form in which it has been brought together for the Gazetteer or for the various statistical reports called for at different times by Government. In some cases also you will no doubt be able to refer the Committee to printed books which throw light upon the subjects referred to in this Circular. On many matters upon which it may not be possible to obtain information in either of these ways,—such as native cookery,—the Committee would suggest that a native Deputy Collector or other intelligent person should be asked to report, as such an inquirer would find far less difficulty in obtaining information than a European officer would do.

3. In reporting on this subject it will be of advantage to give the native names of all plants, products, utensils, &c., in the vernacular character as well as in English letters.

4. To proceed to details:—the subject is naturally divided into the three heads of food, drink, and smoking; under the head of food, the following points are of importance:—

ANIMAL FOOD.

1. *Fish*.—It is useless to attempt to collect actual specimens of the various fish used for food. An endeavour will be made in Calcutta to procure coloured casts of the more characteristic species. But full information should be given as to the names, description, and habits of the species used for food in your district, the localities of the principal fisheries, the classes or castes employed in this industry, and the amount and value of the produce; also the various methods of catching fish, whether by net, spear, or trap.* Any very characteristic forms of net or fish

* Specimens or models of fish traps and other implements and contrivances used for the capture of fish would be very interesting. In the eastern rivers the Gangetic porpoise is destroyed (for the sake of its oil) either by nets or spears. The spear is also used very ingeniously in killing large fish which have first been decoyed to the surface of the water by means of a bait—generally a small fish hooked through the dorsal fin, and so attached to a line and rod held by the spearman in his left hand.

Fowlers' nets are also worth inquiring about, the capture of wild fowl being very cleverly performed in many parts of the country. There is also a sort of fishing-rod,—a jointed contrivance,—for reaching birds with a forked stick covered with birdlime, which is very ingenious. It is believed also that bird-catchers have pipes and whistles, wherewith they imitate the notes and calls of birds, and so decoy them. In some parts of the country these imitations are most wonderful, such, for instance, as those of the calls of the black partridge, the spurious argus, &c.

Again, the spears used by Dhangars for destroying pigs are worth notice.

Trustworthy and detailed information on such points as the foregoing will be very much valued by the Committee.

trap should be forwarded, and wherever it is possible to furnish drawings of the several kinds of net, &c., they should be sent. It should be stated what castes or classes of the community consume fish, and what is the process of cooking or preparing it for consumption; also if there is any considerable export of any fish or preparations of fish to Calcutta or to other districts.

II. *Poultry, game, and butcher's meat.*—Similar information should be given on these heads; the castes should be noted who consume the various kinds of meat, as pork, &c., and the comparative rarity or abundance of each kind stated.

III. *Dairy produce.*—Milk, ghee, butter. No specimens are required under this head, but information as to market prices, and the use made of the produce should be given where available.

IV. *Honey.*—Specimens of the comb, the honey, and the bee itself should be sent where procurable.

V. Wood-boring *larvæ* are eaten in the Lushai country; grasshoppers in other places; and there are wandering tribes who devour snakes, rats, mice, and small animals generally. Information about those abnormal habits would be interesting.

VEGETABLE FOOD.

VI. *Cereals.*—Your special attention is requested to this class. Specimens are required,* not only of each kind of grain grown in your district, but also of the more characteristic varieties of the commoner grains, such as rice; and it is a particular object with the Committee to obtain such specimens from every district, in order that they may themselves select for exhibition those which, from an extended comparison, they may find to possess any special excellence or peculiarity. A dried specimen of the plant in ear should be furnished where practicable. It may be tacked upon a large sheet of paper in a corner of which the name and locality should be written; this may be done also in the case of plants belonging to other classes of food products. The points which should be noted in reporting upon this class are as follows:—

Species or varieties with their vernacular names.

When sown and gathered; on what kind of soil; habit and geographical distribution.

Process of cultivation or reaping, if in any way peculiar; rotation of crops; cost of cultivation.

Statistics of the area covered by each crop.

Amount of produce and export.

Cost of the produce at various times of the year and in various marts.

Mode of preparing food from the grain. Various preparations of food used.

Among cereals may be mentioned rice, wheat, barley, oats, *bajra*, Indian-corn, the different kinds of millet, *marua* or *mandua* (*Eleusine coracana*), *kodo*, and *kutki*, the polygonums cultivated in mountainous districts, &c.

VII. *Pulses*—as peas, beans, *mishkalai*, *kalai*, *kesari*, &c. Specimens of the seed and dried plants would be useful, with notes similar to those indicated for the heads above enumerated.

VIII. *Seeds and plants producing oil used for culinary purposes.*—Specimens of the plants or seeds and of the oil.

IX. *Tubers*—as yams, potatoes, sweet-potatoes, *mán kachiu*, &c. Here it will be best in most cases to give names and description only.

X. *Vegetables and pot-herbs.*—The same remark applies. A full list should be furnished of all esculent plants of this character, such as cucumbers, onions, brinjals, mint, and the different varieties of *sáy* ordinarily grown in native gardens, and where practicable, dried specimens may be sent.

XI. *Condiments.*—Chillies, pepper, turmeric, *tez-pat*, coriander-seed, &c. Specimens of each kind, with a short account of their uses.

XII. *Fruit.*—An account of the principal fruits of your district; whether successfully cultivated; whether of recent introduction; what varieties (as in the case of plantains and Maldah mangoes), are most sought after. Do they

* Of each kind of grain and other similar products about five seers should be sent.

ment. To give effect to the new section 49A, a

Another entirely in section 48. That tionment of the expense from the embankment the area of the land actual benefit derived custom to pay on a with the Collector a long line of embank. These embankments of that district, and the amount of revenue proposed to add a provision the practice that had of apportioning the

The third amendment section 49B. It was a was intended to app tenures it was prov within whose local b within the local bound empowered to declar

Lastly, MR. SCH as it stood persons c ment, or making a engineer, were liable the obstruction or proposed would sup

He had intend postponed for a fori to consider the an suggested to him tl mitted, and that th the Committee. I Council. He woul to the considerat Bill, and that the C Messrs. Beaufort, Mitter, and the m

HIS HONOR TI he would only ma had fallen from t amendments which thing like minute some provision sh lities, which wou constructed or ma more particularly section 69, follow member to give p H

H

if

nt was proposed in

amendment proposed n which the appor- ndars who benefited d either according to abankment, or by the here it had been the t rendered it optional ment. But there is a the River Gunduck. ed by the zemindars em in proportion to and therefore it was the district of Sarun, ing that such a mode mpulsory.

that contained in sec- ne Road Cess Act, and charaj tenures. These the estate or tenure they were not included then the Collector was eluded.

section 58A. By the Bill sstruction in an embank- vious permission of the provision for removing The section which was

of the Bill should be have full opportunity It had, however, been Bill should be recom- for the consideration of meet the approval of the committed with a view posed to be made in the ers, namely the Hon'ble un Tagore, Digumber n a fortnight.

motion to the Council rely agreed with what had not examined the on the table with any solutely necessary that assessment of municipa- ved from embankments

What he woul at indicated as the new proposal of the hon'ble the provisions of "The other scheme of drainage ble member in charge he agreed that it was be made. The general et the maintenance and adary place was put the the hon'ble member was Bill were mainly intended subsidiary to the larger

embankment works, for the improvement of drainage ought to be done. The Drainage Act was not yet passed beyond the Council, and yet works had not yet been commenced. An experiment had been made, and it had been ascertained that it had gone on well. His Honor was interested in the manner in which the works were so far encouraging, and he thought it extremely desirable as possible, and that persons interested in drainage. There was no doubt that the Council should think that this important public interest was that this important work. That Committee had examined various provisions of their services, and again be ripped up these proposed amendments. The question was upon the table since as before, with a few amendments, and

The motion was
The Council

LI

From—S. V.
To—The O

I HAVE the honor of calling for a special report on the situation of opium shops and their bearing upon crime in the neighbourhood.

2. In reply I beg to inform you that in each police section showing a total of 32

3. The number of shops in Calcutta, (1) because the shops are not so strictly as in other localities, and authorities to establish the locality is unfitting.

4. I can adduce no example of crime in their neighbourhood. The largest number of cases reported is Colootolla. Burra Bazar, where the number of robberies in the mofussil is forty nine. There are 100 and other shops.

5. The lower classes in Calcutta and wherever the population chiefly depend upon the sale of opium established to meet the demand. They consume it in their own houses, so that they are not drunk and incapable in the streets.

Bengal was a country of great agriculture, great works of public utility. At the time that the Hooghly was deepened, the measure had not yet been taken. It is to say the proposed works, and he might say that the consent of the parties concerned should be taken. That consent should be taken as the proceedings had been taken, the parties concerned. The result had been that with or without the consent of the country. It was not complete footing as soon as the works of land and other works were undertaken similar works of public utility. It is to recommend, and the Government power was to be taken. He thought a great deal of the public interest. His Honor had no doubt that the Committee had done a great deal of labour of examining the works, and he was indebted to them for that those questions should be considered by that Committee. The amendments placed upon the table composed of the same members as those of the same members, and effect of those works.

instant.

LOUTTA.

1872.

Commissioner of Police, Calcutta,
Department.

No. 6082 of the 4th ultimo, bearing the title of the licence of the liquor, toddy, and other liquors, and their bearing their existence has

been granted for the sale of liquor, &c., from the 1st of this month of December,

in proportion to the population than in any other part of the city, and (2) that in the last ten years, by the licence granted by the police authorities, it is a matter of fact afterwards to declare that

the number of cases is not small, and has any bearing on the largest number of cases is

6. With regard to committing a dacoity they do not drink as a rule, dip their hands in water, and wash their faces, and found that though they were actually drunk, and did not on the other hand, there can be no doubt of half stupefaction from the effect of the opium destroyed.

7. There are ten Chinese who use it. Their friends and smoke it.

8. There are thirty-five in Toltolla and proportionally as great.

9. It is generally attended to offences attended in Calcutta; but I can give no account of more than a hundred dacoities, in a New York burglar, perhaps to me by the captain of the ship had ever sailed with him.

10. I do not think that country crime must be in Scotland, but as far from the following are entertained as to what police statistics of London crime) may be exaggerated, and in England, robberies, &c.

11. In England intemperance undermines morality, supported by extravagance.

12. Those that are generally the result of starvation as it is not because they rob during famine, &c.

13. Whether long as liquor shops are characters and the one way or the other

but not to excess. Before the Brahmins, though they do and touch their foreheads with their hands, and found that though they were actually drunk, and did not on the other hand, there can be no doubt of half stupefaction from the effect of the opium destroyed.

is full of up-country men and elsewhere go there to meet their

in Fenwick Bazar section, population of the two last is

very probably it is so with regard to comparatively rare occurrence of drink and offences requiring me an account of more than a never tasted liquor; and a New York burglar, perhaps to me by the captain of the ship had ever sailed with him, as the most sober man who

ch intemperance in a place or or falsely, much drunkenness little crime, and it would seem paper, that some doubts are drunkenness in England. "The two evils (drunkenness and in 1870 25,564 bad cases of of 2,666, the number of bur- in 1871."

intemperance, intemperance under- also that intemperance is sup- to crime.

longal, for here intemperance is living is so cheap that poverty is the. Dacoits and thieves do not earn their daily bread easier by who take to crime from starvation

immorality and crime, and so to prevent the meeting of bad characters that they cause much difference

Section.	Place.
A	Cossipore
B	Chitpore
C	Ooltadanga
D	Manicktollah
E	Baliaghatta
F	Intally
G	Baniapooker
H	Ballygunge
I	Bhowanipore
J	Tallygunge
K	Alipore

of Calcutta.

Chundoo.	Mundut.	Churru.	Siddhee.	Majoom.	Toddy.	Coffee and tea shops and eating house.	Total in each section.
1	1	...	...	...	...	...	7
2	1	...	...	...	1	...	17
...	...	...	...	...	...	...	5
2	1	...	...	...	7	...	43
1	...	...	...	...	5	...	22
1	1	...	...	...	0	...	20
...	...	...	...	...	0	...	13
2	2	1	...	...	0	...	56
...	...	...	...	...	3	...	5
2	1	2	...	...	2	2	18
...	...	...	...	...	1	...	5
1	3	1	1	1	7	3	42
...	...	...	...	...	3	...	6
...	...	...	...	...	3	...	10
1	14	8	4	1	58	5	274

by the glass.
S. WAUCHOPE,
Offg. Commissioner of Police.

List c.

Section.	Place.
A	Shampoookur
B	Coomartollee
C	Burtulla
D	Sookca's Street
E	Jore Bagan
F	Jorasanko
G	Burra Bazar
H	Colootollah
I	Moocheeparah
J	Bow Bazar
K	Puddopookur
L	Waterloo Street
M	Fenwick Bazar
N	Toltollah
O	Collingah
P	Badamtallee
Q	Bamumbustee
R	Hastings
	Total

* The sales

CALCUTTA POLICE OFFICE,
The 24th December

tt.

Churru.	Siddhee.	Majoom.	Toddy.	Coffee and tea shops and eating houses.	Total in each section.
1					8
	1				17
					9
					3
	2				23
		1		14	45
	2	1			49
			3		34
				1	12
		1		2	38
					11
					25
1			1		81
				1	15
			1		6
					3
					1
					1
	5	3	5	19	328

18.

W. WAUGHOPPE,
Commissioner of Police.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported during the week ending the 11th January 1873.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BUEDWAN DIVISION.	1 Burdwan	Jan. 14th*	Nil.	Very cold	Amun dhan nearly cut; no apparent change in the prospects of winter crops.	Fever on the decrease and cholera disappearing.
	2 Bancoorah	" 14th	Nil.	Dry and very cold	The cutting of the paddy crops is now reported to be finished. The winter crops are progressing.	
	3 Beerbhoom	" 11th	02	At the beginning of the week the weather was slightly cloudy and warm. It is now clear and cold.	Reaping of paddy nearly finished. Winter crops flourishing.	
	4 Midnapore	" 11th	Nil.	Fair	Good.	
	5 Hooghly	" 11th	Nil.	Fair and cold. North wind.	Winter crops pretty good.	
	Howrah	" 11th	Nil.	Weather fairly cold and dry.	Amun rice crops are being reaped. State and prospects of sugarcane good.	Fever still prevalent.
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 24-Pergunnahs	" 14th	Nil.	Cold and dry	Two-thirds of the amun paddy crop have been harvested. Prospects of the cold weather crop favorable.	Fever and cholera are abating.
	7 Nuddca	" 11th	Nil.	Warm in the early part of the week; afterwards cold and seasonable.	Crops on the whole very fair.	
	8 Jessore	" 11th	Nil.	Clear and cold	Good.	
RAJSHAHYE DIVISION.	9 Moorshedabad	" 11th	0.10	During the first part of the week it was close and somewhat cloudy. Since rain on 8th, it has been briskly cold.	Kalai and moong have been cut; the rest of the cold weather crops are in a flourishing condition. The rain has been beneficial. The reaping of amun paddy nearly finished; outturn very fair.	
	10 Dinagepore	" 11th	Too slight for measurement.	Slight rain on two days with a little thunder, a most unusual thing.	Good.	
	11 Maldah	" 11th	0.27	Early half-week cloudy; slight rain on morning of 7th, and a good shower during the night of 7th and on the 8th instant. Strong westerly wind and very cold.	Hymunty dhan is being reaped and a 14-anna crop is expected on an average throughout the district. Cold weather crops are expected to give a good outturn. The rain will be beneficial to rubee crops, but not so to "sersa," which is now ripening.	Fever in the district decreasing.
	12 Rajshahye	" 11th	A few drops of rain only.	The beginning of the week fine and cool, the middle cloudy, and the latter part fine and very cool; on Tuesday night a few drops of rain fell.	The amun and ropa dhan are still being cut. Indigo and rubee crops are flourishing. Gunja appears very well in the Nowgong division.	

* Telegram of the 14th January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>		1873.				
RAJSHAHY DIVN.—(Contd.)	13 Rungpore	Jan. 11th	.05	Some rain on the 8th instant; since then the weather has been raw cold.	Cutting progressing.	
	14 Bograh	" 11th	A few drops of drizzling rain not appreciable by the gauge.	In the beginning of the week the weather was fine. On the 8th and 9th, it was cloudy with strong chilly wind from the north-west; a few drops of rain fell on the morning of the 8th instant.	The reaping of the amun crop is almost finished; the outturn is likely to be generally full. The condition of the minor crops continues good.	
	15 Pubna	" 11th	Nil.	Dry, but temperate; north-west wind.	Amun paddy has been reaped; sugarcane, turmeric, and other crops of the season are progressing favorably.	
COOCH BEHAR DIVN.	16 Darjeeling	" 11th	Nil.	Very cold and misty, threatening rain or snow.	Progressing favorably.	
	17 Julpigoree	" 11th	.05	Much colder since the slight fall of rain.	Continue good.	
	Cooch Behar	" 11th	Nil.	Very cold and fine	Reaping dhan crop still going on. Prospects of cold weather crops good.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	" 14th*	Nil.	Weather very cold at the end of the week.	Safflower looks well, and a large extent sown. Other crops good.	
	19 Furreedpore	" 11th	Nil.	Weather dry and cold.	The harvest continues good.	
	20 Backergunge	" 11th	Nil.	Cold	Good. Most of the rice has been cut.	
	21 Mymensing	" 11th	.01 A slight shower on the 8th inst.	The weather has been colder than usual this season.	No particular change in the prospects of the crops.	The outbreak of cholera is on the decrease, but small-pox still rages in the district, especially in the three bazars of the station.
	22 Sylhet	" 4th	Nil.	Cold at night. One or two cloudy days.	Very little of the crops remains to be cut.	
CHITTAGONG DIVISION.	23 Cachar	" 4th	Nil.	Fair and cold	Dhan almost all cut.	
	24 Chittagong	" 4th	Nil.	Fine and cool with northerly wind.	Paddy mostly reaped. The cold weather crops reported to be doing well.	
	25 Noakhally	" 4th	Nil.	Fair and cold	Amun dhan nearly gathered in. Cold weather crops progressing favorably.	
	26 Tipperah	.....	.....	.....	.....	Return not received.
	27 Chittagong Hill Tracts	" 4th	Nil.	Very cold and dry	Cold weather crops thriving well. Cotton still being gathered in.	
	Hill Tipperah	" 4th	Nil.	Clear and cool	The rice crop has been nearly reaped; outturn on the whole good. Mustard is being gathered.	

* Telegram of the 14th January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.		1873.				
PATNA DIVISION.	28 Patna	Jan 14th*	0.71	Weather fine and cold. There was a good fall of rain on the 7th and 8th instant.	The rain, though doing a little harm to the mustard in flower, has been highly beneficial to the other rubee crops.	Health of the district good.
	29 Gya	" 11th	0.06	Very cold, and rain generally throughout the district.	The rubee crops promise fairly, but in some places is in want of more rain. Poppy is somewhat backward.	
	30 Shahabad	" 11th	0.30	Cloudy, windy, and cold. A small quantity of rain fell on the night of Wednesday and during Thursday. The rain was very local and confined to the north of the district.	Good.	
	31 Tirhoot	" 11th	There was a little drizzling rain on the nights of the 6th and 7th instant.	Clear and cold; strong westerly breeze throughout the week.	The rice harvest is completed; the state of the rubee crops is good; poppy crops are not promising well in the sub-division of Hajee-pore.	
	32 Sarun	" 11th	0.13	Fair; nights nipping cold.	Rubee continues promising. The slight rain of the 6th has been very beneficial; little more rain is needed.	
	33 Chumparan	" 11th	0.10	Very cold. West and north-west wind.	The late rain has benefited the rubee crops, but it was very partial, and more is wanted.	
	34 Monghyr	" 11th	0.21	Very cold with a high wind and a tendency to stormy.	Could hardly be better. The rain (which has been general all over the district) was just what was wanted.	
BHAUGULPORE DIVN.	35 Bhaugulpore	" 14th*	0.12	Very cold	Rubee crops very good	Small-pox decreasing, except in Banka sub-division. Fever in north dying out.
	36 Purneah	" 11th	Very slight showers on Wednesday morning.	Colder than last week. Cold west wind.	The aughany crop is not quite reaped. The rubee crop is good, but would be better for some rain.	Intermittent fever prevalent. Some cases of small-pox.
	37 Sonthal Pergunnahs	" 11th	0.09	Dry with increased cold; a few drops of rain on the 8th instant. Rajmehal sub-division—Slight showers of rain in the northern part on the 7th and 8th Deoghur sub-division—A little rain has fallen on Thursday night; since then the weather has been very cold and windy. Godda sub-division—Rain fell, but not sufficient to do much good.	Very fair.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	" 14th*	Nil.	Weather cool	Crops flourishing.	
	39 Pooree	" 4th	Nil.	Fine and cool	Rice crop nearly all reaped.	
	40 Balasore	"	"	"	"	Return not received.

* Telegram of the 14th January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
CHOTA NAGPORE.		1863.				
<i>South-West Frontier Agency.</i>						
41	Hazareebaugh	Jan. 11th	Nil.	Clear and very cold; dry wind blowing. A little rain has fallen in the interior of the district.	The rain has proved beneficial to the crops.	Small-pox continues prevalent.
42	Loharduggah	" 11th	Nil.	Beginning of the week very warm, but latterly cold, with high winds.	Rubee crops promise well; but a good shower of rain is very much wanted.	Small-pox prevalent.
43	Singbhoom	" 4th	Nil.	Seasonable	Favorable.	
44	Maunbhoom	" 11th	Nil.	Cool	The cold weather crops are doing well; but some rain will be wanted at the end of this month.	
ASSAM AND ADJACENT HILLS.						
45	Goalparah	" 4th	Nil.	Weather cold and humid. Mornings foggy generally.	Good. Gathering of mustard crop commenced.	Cholera in Dhokee subdivision is decreasing. A slight shock of earth-quake was felt at about 10½ P.M. of 28th December 1872, and another (very slight) at about 2 P.M. of the 3rd January 1873.
46	Kamroop	" 13th*	11	There was pretty heavy shower on the 8th; since then the weather is much colder and fogs not so heavy.	Shalee dhan has yielded a fair outturn; prospects of mustard seed, pulse, and sugarcane favorable.	Public health good.
47	Durrung	" 4th	Nil.	Weather foggy. Daily range of temperature very high. North-east wind prevailing.	The condition of the dhan and pulse crops is good; that of the sugarcane fairly good.	
48	Nowgong	" 4th	Nil.	Mornings foggy; evenings cool; nights cold; north-easterly breeze.	Paddy (sali) being reaped. Pulses gathered. Mustard good. Cotton being gathered. Tea good. Sugarcane generally promising.	
49	Sebsaugor	" 4th	Nil.	Mornings foggy; evenings fair; nights very cold; no rain.	The dhan crop is very nearly all reaped. Tea season is over. Cold weather crops promise well.	Cholera is decreasing.
50	Luckimpore	" 4th	Nil.	Weather seasonable with dense fogs in the morning. At North Luckimpore fine and dry; nights very cold; mornings and evenings misty.	Rice harvest almost in. Other crops doing well.	A little cholera about on north bank of the Berhampooter.
51	Naga Hills	1872. Dec. 28th	Nil.	Fine throughout the district.	The whole of the crops have been nearly gathered in. Outturn considered good.	
52	Khasi and Jynteah Hills.	1873. Jan. 4th	Nil.	Generally cloudy	Besides cotton there is no other crop on the ground.	
53	Garohills	" 4th	Nil.	Seasonable and fine.	No crops on the ground but cotton, which is being gathered now. The Garos are also preparing their jooms.	

* Telegram of the 13th January received on the 14th.

Published for general information.

CALCUTTA,
The 14th January 1874.J. WARE EDGAR,
Off. Junior Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from	Rain from	RAIN FROM 1ST		REMARKS.		
			22nd to 28th Dec. 1872.	29th to 31st Dec. 1872.	JANUARY 1872.	Up to date.			
			Inches.	Inches.	Inches.	1872.			
BENGAL.	WESTERN DISTRICTS.	Burdwan	Nil.	Nil.	49.47	31st Dec.			
		Burdwan	Culwa	ditto	ditto	53.76	ditto		
			Culina	ditto	ditto	46.20	ditto		
			Bood-Bood	ditto	ditto	45.55	ditto		
			Ranceeunge	ditto	ditto	49.23	ditto		
			Jehanabad	ditto	ditto	48.26	ditto		
		Bancoorah	Bancoorah	ditto	ditto	44.41	ditto		
			Boorce	ditto	ditto	50.89	ditto		
		Midnapore	Midnapore	ditto	ditto	55.39	ditto		
			Tumlook	Not rec.	Not rec.	46.16	7th Dec.	Not received 24th to 30th Nov.	
			Gurbetta	Nil.	Nil.	44.10	31st Dec.		
		Burdwan.	Contal	Dy. Collr.'s Office	ditto	ditto	46.98	ditto	Not received 20th Sept. to 19th Oct.
				Exe. Engr.'s Office	ditto	ditto	56.22	ditto	
			Hooghly	Hooghly	ditto	ditto	51.01	ditto	
			Howrah	Seramore	ditto	ditto	55.70	ditto	
PRESIDENCY.	CENTRAL DISTRICTS.	Saugor Island	ditto	ditto	67.22	ditto			
		Calcutta	ditto	ditto	51.05	ditto			
		Alipore	Dispensary	ditto	ditto	48.55	ditto		
			Jail	ditto	ditto	49.70	ditto		
		24-Pergunnahs	Bussacrhaut	ditto	ditto	60.12	ditto		
			Barnet	ditto	ditto	49.78	ditto		
			Diamond Harbour	ditto	ditto	56.07	ditto		
			Barripora	ditto	ditto	50.06	ditto		
			Satkhern	ditto	ditto	54.62	ditto		
		Nuddea	Barrackpore	ditto	ditto	54.69	ditto		
			Jum-Dum	ditto	ditto	61.53	ditto		
			Kishur-lur	ditto	ditto	45.07	ditto		
			Bongour	ditto	ditto	54.07	ditto		
			Moherpore	ditto	ditto	42.24	ditto		
		Jessore	Choudanuah	ditto	ditto	39.06	ditto	Not recorded 29th Sept. to 19th Oct.	
Kooshpur	ditto		ditto	46.46	ditto				
Banaghat	ditto		ditto	49.13	ditto				
Jessore	ditto		ditto	69.41	ditto				
Nurul	ditto		ditto	60.58	ditto				
Moorshedabad	Khadueah	ditto	ditto	55.02	ditto				
	Jendah	ditto	ditto	69.54	ditto				
	Buzirhaut	ditto	ditto	55.74	ditto				
	Magoorah	ditto	ditto	51.63	ditto				
	Barhampore	ditto	ditto	63.04	ditto				
Dinapore	Jamoukandi	ditto	ditto	50.28	ditto	Not received 13th to 19th Oct. and 15th to 21st Dec.			
	City Moorshedabad	ditto	ditto	51.41	ditto	From 1st February.			
	Jumjore	ditto	ditto	55.85	ditto				
	Azimunge	ditto	ditto	49.29	ditto				
	Dinapore	ditto	ditto	76.07	ditto				
Rajshahye	Maldah	ditto	ditto	52.51	ditto				
	Maldah	ditto	ditto	54.08	ditto				
	Ranlesah	ditto	ditto	46.82	ditto				
	Natore	ditto	ditto	86.28	ditto				
	Rungpore	ditto	ditto	81.57	ditto				
Bograh	Italya	ditto	ditto	126.77	ditto				
	Hoerah	ditto	ditto	66.88	ditto				
	Pubna	ditto	ditto	58.28	ditto				
	Pubna	ditto	ditto	56.80	ditto	Not received 15th to 21st Sept. and 13th to 19th Oct.			
	Serajunge	ditto	ditto	56.80	ditto				
COOCH BEHAR.	Darjeeling	Telegraph Office	Not rec.	Not rec.	118.63	15th Dec.			
		Hospital	Nil.	Nil.	107.46	31st Dec.			
	Rungee	Nil.	Nil.	43.15	30th June.				
	Julpigoree	ditto	ditto	125.40	31st Dec.	From 12th May.			
	Palnecotta	ditto	ditto	52.55	ditto				
Cooch Behar Tributary State	Boda	ditto	ditto	85.30	ditto				
	Cooch Behar	ditto	ditto	132.59	ditto				
DACCAL.	EASTERN DISTRICTS.	Buxa	ditto	ditto	194.84	ditto			
		Dacca	Telegraph Office	ditto	ditto	73.53	ditto		
			Hospital	ditto	ditto	65.40	ditto	Not received 24th to 30th Nov.	
			Moonsheerungo	ditto	ditto	50.71	ditto	From 10th June, and not received 24th to 30th November.	
		Furreedpore	Manickrunge	ditto	ditto	23.77	ditto	From 15th July, and ditto ditto.	
			Furreedpore	ditto	ditto	53.36	ditto		
			Goalundo	ditto	ditto	54.37	ditto		
		Backergunge	Burrisaul	ditto	ditto	83.14	ditto		
			Perozepore	ditto	ditto	62.53	ditto		
			Madaripora	ditto	ditto	76.32	ditto		
			Patookhally	ditto	ditto	90.73	ditto	From 13th May.	
		Mymensing	Dowlat Khan	ditto	ditto	81.40	ditto		
			Mymensing	ditto	ditto	86.46	ditto		
			Jamulpore	ditto	ditto	77.54	ditto		
		Sylhet	Atteah	ditto	ditto	55.08	ditto		
Kishoregunge	ditto		ditto	94.90	ditto				
Cachar	Sylhet	ditto	Not rec.	203.30	28th Dec.				
	Cachar	ditto	Nil.	124.14	31st Dec.				
	Hylkandy	Not rec.	Not rec.	112.76	2nd Nov.	Not received 17th Nov. to 7th Dec.			
CHITTAGONG.	Hill Tipperah	Koyah	Nil.	ditto	129.54	28th Dec.			
		Chittagong	Telegraph Office	ditto	Nil.	90.20	31st Dec.		
			Jail	ditto	Not rec.	87.50	28th Dec.		
		Cog's Bazar	ditto	Nil.	38.70	31st Dec.	Not received 24th to 30th Nov.		
		Bumpamutee Hill	ditto	ditto	101.08	ditto			
		Noakhally	ditto	ditto	109.10	ditto			
		Comillah	ditto	ditto	81.54	ditto			
Brahmanbariah	ditto	ditto	64.31	ditto					
Hill Tipperah	Hill Tipperah	ditto	ditto	22.19	ditto	From 4th Aug.			

DIVISION.	DISTRICT.	STATION.	Rain from 22nd to 28th Dec. 1877.	Rain from 29th to 31st Dec. 1877.	RAIN FROM 1ST JANUARY 1878.		REMARKS.	
					Inches.	Up to date.		
PATNA.	BEHAR.	Patna	Nil.	Nil.	31.17	31st Dec.		
		Behar	ditto	ditto	37.83	ditto		
	Patna	Barh	6.40	ditto	28.06	ditto	Not received 3rd to 9th Nov.	
		Dinapore... { Jail Cantonment	ditto	ditto	26.33	ditto	Ditto ditto.	
	Gya	Gya	ditto	ditto	33.45	ditto		
		Nowadah	ditto	ditto	34.97	ditto		
		Aurnasabad	ditto	ditto	38.18	ditto		
	Shahabad	Sherchotty	ditto	ditto	37.71	ditto		
		Arrah	Not rec.	Not rec.	32.53	31st Aug.		
		Sasseram	Nil.	Nil.	35.45	31st Dec.		
	Tirhoot	Buxar	ditto	ditto	31.06	ditto		
		Rhubooh	ditto	ditto	33.83	ditto		
		Mozafforpore	ditto	ditto	38.14	ditto		
	Sarun	Durbangah	ditto	ditto	52.47	ditto		
		Rajnore	Not rec.	Not rec.	42.18	14th Dec.	Not received 10th to 23rd Nov.	
		Mudhubani	ditto	ditto	38.20	30th Nov.	Not received 7th Sept., 10th to 16th Nov., and 24th Nov. to 7th Dec.	
	Chumparun	Sectamarie	ditto	ditto	48.12	14th Dec.	Not received 17th to 23rd Dec.	
		Tajpore	ditto	ditto	55.28	7th Dec.		
		Chuprah	Nil.	Nil.	43.73	ditto		
	Monghyr	Sewan	Not rec.	Not rec.	38.48	31st Dec.		
		Moteehari	Nil.	Nil.	47.18	21st Dec.		
		Bettiah	ditto	ditto	50.29	31st Dec.		
	BHAUGULPORE.	Bhaugulpore	Monghyr	ditto	ditto	52.50	ditto	
Regoseera			Not rec.	ditto	41.27	ditto	Not received 15th to 23rd Dec.	
Jamokee			Nil.	ditto	40.82	ditto	Not recorded 29th Jan. to 2nd Feb.	
Purneah		Bhaugulpore	ditto	ditto	32.04	ditto		
		Sooool	ditto	ditto	33.08	ditto		
		Mudheypoorah	ditto	ditto	57.36	ditto		
Sonthal Pergunnah		Banka	ditto	ditto	44.04	ditto		
		Purneah	ditto	ditto	47.70	ditto		
		Kishensunge	ditto	Not rec.	00.24	24th Dec.		
ORISSA.		Cuttack	Arrarah	ditto	ditto	80.82	ditto	
	Deochur		ditto	ditto	64.15	ditto	Not recorded 22nd to 28th Jan.	
	Jamtara		ditto	Nil.	41.46	31st Dec.	Ditto Srd to 9th ditto.	
	Sambalpoore	Rajmehal	ditto	ditto	50.72	ditto		
		Pakour	ditto	ditto	35.04	ditto		
		Nya-Doomka	ditto	Not rec.	47.17	24th Dec.		
CHOTA NAGPORE— SOUTH-WESTERN FRONTIER AGENCY.	Cuttack	Godda	ditto	ditto	40.28	31st Dec.	From 2nd September.	
		Cuttack { Telegraph Office Hospital	ditto	ditto	58.20	ditto		
		Jajipore	ditto	ditto	71.14	ditto		
	Pooree	Kendrapara	ditto	ditto	58.44	ditto		
		Juantsingpore	ditto	ditto	62.75	ditto		
		False Point	ditto	ditto	75.80	ditto		
	Balasore	Pooree	ditto	Nil.	106.40	ditto		
		Khoordih	ditto	ditto	75.14	ditto		
		Balasore	ditto	ditto	77.09	ditto		
	Mehals	Bluddruck	ditto	Not rec.	72.92	28th Dec.		
Sambalpoore		Not rec.	ditto	61.73	ditto			
ASSAM & ADJACENT HILLS.	Hazaroebaugh	Sambalpoore	Not rec.	ditto	04.40	30th Nov.		
		Hazaroebaugh { Jail Dispensary	Nil.	Nil.	35.10	31st Dec.		
		Pachumba	ditto	ditto	37.87	ditto		
	Loharduggah	Ranchee	ditto	ditto	42.23	ditto		
		Palamow	ditto	ditto	40.47	ditto		
	Singbhoom	Chyebussa	ditto	ditto	29.05	ditto		
		Purulia	ditto	ditto	51.16	ditto		
	Maunbhoom	Gobindpore	ditto	ditto	47.22	ditto	Not received 13th to 19th Oct. and 24th to 30th Nov.	
		Gobindpore	ditto	ditto	50.08	ditto		
	ASSAM & ADJACENT HILLS.	Goalparah	Goalparah	ditto	ditto	104.28	ditto	
			Dhoobree	ditto	ditto	108.44	ditto	
			Gowhaty	ditto	ditto	78.09	ditto	
		Kamroop	Burpettah	ditto	Not rec.	120.79	28th Dec.	
Tezporo			ditto	ditto	63.89	ditto		
Darrung		Munglodyo	ditto	ditto	74.12	ditto		
		Nowgong	ditto	Nil.	153.07	31st Dec.		
Soehsaugor		Nowgong	0.85	Not rec.	104.07	28th Dec.		
		Soehsaugor	Nil.	ditto	07.40	ditto	Not received 15th to 31st Dec.	
		Golachat	0.83	ditto	81.29	ditto	Not received 24th Nov. to 7th Dec.	
Luckimpore		Jorehaut	0.43	ditto	80.69	ditto		
		Nazerah	0.16	ditto	112.18	ditto		
		Delroochur	0.54	ditto	37.47	ditto	From 21st August.	
Naga Hills	North Luckimpore	Nil.	ditto	96.84	ditto			
	Suddya	Not rec.	ditto	48.37	23rd Nov.			
	Sanoogoodting	0.01	ditto	81.86	28th Dec.			
Khasi and Jynteah Hills.	Shillong	Nil.	ditto	148.80	ditto			
	Jnowai	Not rec.	ditto	46.75	30th Nov.			
Garohills	Cherrapunjee	Nil.	ditto	111.30	24th Dec.			
	Tora	ditto	Nil.	31.83	31st Dec.	Not received 13th to 26th Oct.		
	Benurea	ditto	Nil.	173.30	ditto			
	Akyab	ditto	ditto					

CALCUTTA,

The 11th January 1878.

H. F. BLANFORD,

Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 5th to 11th January 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. = 100	WIND.		Rain.	Clouds.	Weather initials.
					Dry.	Wet.		Direction.	Velocity.			
CALCUTTA.	Jan.											
	5th	10	29.991	30.010	70.5	63.0	63	W N W	...	...	C	b
		16	29.835	29.853	78.5	65.5	46	W by N	...	...	...	h
	6th	10	29.917	29.936	73.5	68.0	74	W by S	...	...	...	b
		16	29.807	29.825	81.7	67.0	43	W by N	...	...	...	b
	7th	10	29.903	29.922	73.0	69.7	82	S S W	...	...	...	b
		16	29.806	29.824	82.5	71.6	55	W N W	...	...	...	b
	8th	10	30.000	30.010	71.5	69.2	88	N W	...	...	S	b
		16	29.916	29.934	80.0	71.5	64	N N W	...	...	...	b
	9th	10	30.071	30.090	62.7	52.6	46	N N E	...	...	...	b
		16	29.946	29.965	69.8	59.0	35	W N W	...	...	...	b
	10th	10	30.037	30.056	64.7	54.5	47	N N E	...	...	...	b
	16	29.886	29.905	70.0	56.0	35	N W	...	...	...	b	
11th	10	30.053	30.072	65.0	53.8	43	N N E	...	...	...	b	
	16	29.921	29.940	68.0	55.0	38	N W	...	...	...	b	
Saugor Island.	5th	10	30.022	30.029	72	63	58	N W	3.5	...	C	b
		16	29.858	29.844	80	79	59	S S W	5.3	...	...	h
	6th	10	29.935	29.941	75	66	59	N W	3.8	...	C	b
		16	29.833	29.839	80	71	62	S S W	8.6	...	...	b
	7th	10	29.917	29.923	77	74	86	S W	4.3	...	...	b
		16	29.824	29.830	80	74	74	S	9.5	...	...	b
	8th	10	30.015	30.021	78	75	86	S W	8.2	...	...	b
		16	29.912	29.918	80	73	70	N	8.8	...	CK	b
	9th	10	30.082	30.048	65	52	35	N	18.5	...	...	b
		16	29.957	29.963	72	57	31	N N E	9.9	...	...	b
	10th	10	30.017	30.023	68	62	69	N	7.0	...	...	b
		16	29.885	29.891	73	61	46	N	6.0	...	...	b
11th	10	30.050	30.062	68	57	46	N E	6.0	...	...	b	
	16	29.936	29.942	70	60	52	N	9.7	...	C	b	
CHITTAGONG.	5th	10	29.890	29.894	72	64	62	N E	2.5	...	...	b
		16	29.790	29.881	76	66	58	S S W	6.8	...	...	h
	6th	10	29.876	29.870	73	67	71	E	5.7	...	...	b
		16	29.779	29.871	78	67	53	S W	4.9	...	...	b
	7th	10	29.840	29.834	73	67	71	N N E	3.3	...	...	b
		16	29.792	29.885	78	69	61	W S W	4.6	...	...	b
	8th	10	29.951	30.045	74	69	76	N N W	2.3	...	...	b
		16	29.865	29.959	76	71	77	W S W	4.7	2.00	C, CK	b
	9th	10	29.949	30.044	72	67	75	N	2.9	...	CK	b
		16	29.840	29.934	75	70	76	W N W	5.7	...	...	b
	10th	10	29.927	30.022	68	65	84	N N E	5.4	...	...	b
		16	29.808	29.903	71	67	80	S W	4.7	...	...	b
11th	10	29.932	30.028	66	58	49	N N E	4.8	...	...	b	
	16	29.831	29.926	71	55	29	W	6.5	...	...	b	
MADRAS.	4th	10	30.020	30.059	77	68	60	N E by N	3	...	...	e
		16	29.930	29.980	80	68	51	E N E	8	...	...	e
	5th	10	30.052	30.082	76	68	64	N E by E	4	...	...	e
		16	29.927	29.957	80	69	54	N E by E	5	...	...	b
	6th	10	30.022	30.032	78	70	65	N E by E	3	...	...	b
		16	29.874	29.904	78	69	61	E S E	8	...	...	b
	7th	10	29.951	29.981	78	70	65	E S E	4	...	...	b
		16	29.847	29.877	79	70	61	S E by E	7	...	...	b
	8th	10	30.002	30.032	80	72	66	S E by E	4	...	...	b
		16	29.907	29.937	80	70	58	N E by E	10	...	...	b
	9th	10	30.027	30.057	82	72	59	P	...	...	...	b
		16	29.914	29.944	81	72	62	N E by N	12	...	...	b
10th	10	30.032	30.062	79	71	65	N N E	8	...	...	b	
	16	29.905	29.935	81	70	55	N E by N	10	...	...	b	
CUTTACK.	4th	10	29.955	30.039	73	61	46	W N W	2.3	...	...	b
		16	29.821	29.901	82	70	52	W N W	2.9	...	...	b
	5th	10	29.942	30.028	63	57	67	W S W	1.5	...	...	b
		16	29.799	29.881	81	66	34	N W	2.6	...	...	b
	6th	10	29.869	29.952	77	65	40	W N W	2.6	...	...	b
		16	29.757	29.839	86	71	44	W S W	3.7	...	...	f
	7th	10	29.840	29.933	71	70	64	W S W	0.9	...	...	b
		16	29.739	29.821	86	71	44	S W	4.6	...	...	b
	8th	10	29.944	30.027	78	70	65	N W	1.9	...	...	b
		16	29.851	29.933	84	70	46	W N W	5.2	...	...	b
	9th	10	29.900	30.083	73	64	58	S S W	1.0	...	...	b
		16	29.869	29.952	80	64	37	E S E	2.3	...	...	b
10th	10	29.942	30.026	72	62	53	W N W	1.0	...	...	b	
	16	29.811	29.894	79	62	33	N	3.8	...	...	b	
AYYER.	5th	10	?	?	71	64	68	N E	0.1	...	...	b
		16	29.802	29.884	75	63	47	W N W	5.0	...	...	b
	6th	10	29.844	29.863	72	65	66	E	0.5	...	...	b
		16	29.837	29.859	76	69	68	W	2.1	...	...	b
	7th	10	29.916	29.938	75	68	68	N E	0.1	...	...	b
		16	29.894	29.856	78	70	65	W	2.0	...	...	b
	8th	10	30.023	30.045	75	68	64	E N E	...	...	...	b
		16	29.922	29.944	77	69	64	W	2.1	...	...	b
	9th	10	30.003	30.025	77	70	68	N W	0.2	...	...	b
		16	29.894	29.916	70	72	81	N W	1.6	...	...	b
	10th	10	29.974	29.998	74	64	55	N W	0.1	...	...	b
		16	29.855	29.877	75	60	36	N W	3.8	...	...	b
11th	10	29.964	30.006	72	58	37	N W	...	...	...	b	
	16	29.868	29.890	72	53	37	W N W	2.5	...	...	b	

* Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 1st to 7th January 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Rain.	Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.			
Jan. ...	1st	29.923	75.2	58.5	130.0	66.8	60.7	66.6	0.74	N N E & W N & W	...	74.8	...	...	Clear. Slightly foggy at midnight and 1 A.M. and from 7 to 10 P.M.
	2nd	.922	77.5	58.0	122.0	66.5	60.9	56.4	.72	W N W & N W	...	50.5	...	...	Clear. Slightly foggy from 5 to 9 A.M. and 7 to 10 P.M.
	3rd	.876	78.0	57.5	127.5	66.6	60.9	56.3	.71	S S E & N W	...	40.7	...	...	Clear. Slightly foggy at 8 and 7 A.M. and from 7 to 10 P.M.
	4th	.911	79.0	58.3	124.9	67.3	59.9	54.0	.64	N W & W N W	...	98.8	...	...	Clear. Slightly foggy from 7 to 9 P.M.
	5th	.907	79.8	59.4	130.0	69.1	62.6	57.4	.68	W by S. & W N W	...	70.9	...	...	Clear and cirri. Slightly foggy from 4 to 7 A.M. and 7 to 10 P.M.
	6th	.853	83.6	61.5	135.2	71.5	66.1	61.8	.73	W by S & S S W	...	65.4	...	...	Clear. Slightly foggy at 6 A.M. and 7 and 8 P.M.
	7th	.848	84.0	66.5	139.0	73.4	68.5	61.6	.75	S S W & W N W	...	43.0	...	...	Clear. Slightly foggy from 6 to 8 A.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	26.5
The max. temperature during the past seven days	...	84.0
The max. temperature during the corresponding period of the past year	...	82.0
The mean humidity during the past seven days	...	0.71
The mean humidity during the corresponding period of the past year	...	0.75
		Inches.
The total fall of rain from 1st to 7th	... { by lower rain gauge	Nil.
	... { by anemometer gauge	Nil.
Ditto ditto ditto	average of nineteen previous years	Nil.
Ditto ditto between the 1st January and the 7th January	...	Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	Nil.

GOPENAATH SEN,
In charge of the Observatory.

The 13th January 1873.

GENERAL ESTABLISHMENT.—No. 490.—The 9th December 1872.

Statement showing heights over mean sea level and low water on Rivers Ganges and Bhagiratty during the month of November 1872.

DATE.	RIVER GANGES.										RIVER BHAGIRATTY.		
	Benares.	Buxar.	Dinapore.	Monghyr.	Sakibgunge.	Rampore Beaulah.	Goalundo.	Berhampore.	Kishnaghur.	Miles.	Distance.	Height over low water.	Height over mean sea level.
1st	9-6	175 49	8-7	110-51	381.	471.	591.	120.	70.		12-3	46-98	21-04
2nd	9-3	173-23	8-6	110-33							11-8	46-31	20-45
3rd	9-1	175-07	8-4	110-35							11-1	45-64	19-87
4th	8-11	174-80	8-1	109-18							10-5	45-06	19-20
5th	8-10	174-32	8-0	109-93							9-8	44-56	18-45
6th	8-8	174-65	8-0	109-85							9-0	44-14	17-79
7th	8-0	174-43	7-9	109-60							8-4	43-72	17-12
8th	8-5	174-40	7-7	109-43							7-3	43-06	16-63
9th	8-4	174-32	7-4	109-18							7-0	42-80	16-12
10th	8-2	174-15	7-3	109-01							6-9	42-56	15-79
11th	8-0	173-99	7-0	108-85							6-6	42-40	15-58
12th	7-10	173-82	6-11	108-76							6-5	42-14	15-29
13th	7-9	173-73	6-0	108-60							6-2	41-98	14-95
14th	7-7	173-57	6-6	108-35							6-1	41-80	14-87
15th	7-6	173-48	6-4	108-18							6-10	41-54	14-62
16th	7-4	173-32	6-3	108-10							5-7	41-14	14-54
17th	7-3	173-24	6-1	107-93							5-4	40-90	14-37
18th	7-2	173-16	6-0	107-78							5-1	40-73	14-12
19th	7-1	173-07	5-11	107-63							5-1	40-55	13-87
1st	7-0	172-93	5-10	107-51							5-0	40-38	13-79
2nd	6-11	172-80	5-8	107-35							5-0	40-14	13-70
3rd	6-11	172-70	5-7	107-35							4-11	40-31	13-70
4th	6-11	172-80	5-6	107-35							4-10	40-14	13-62
5th	6-10	172-2	5-4	107-18							4-8	40-06	13-45
6th	6-8	172-74	5-3	107-10							4-7	39-90	13-37
7th	6-9	172-74	5-2	107-01							4-6	39-73	13-29
8th	6-8	172-65	5-2	107-01							4-5	39-56	13-20
9th	6-7	172-38	5-1	106-93							4-3	39-40	12-95
10th	6-7	172-58	5-0	106-85							4-2	39-31	12-85

H. LUKONARD, C.E.,
Offg. Secy. to the Govt. of Bengal, P. W. D.

Weekly Return of Traffic Receipts on Indian Railways.

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for week ended 28th December 1872, on 156½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week ...	84,155	21,373 7 6	1,959 4 8	100,196 38	15,493 0 2	1,411 18 10	3,371 3 6
Or per mile of railway ...	215	136 0 2	12 10 5	650 0	98 6 9	9 0 5	21 10 10
For previous 26 weeks of half-year ...	731,657½	6,25,448 10 4	40,832 15 2	3,327,030 2½	10,13,680 12 10	92,920 14 0	133,753 9 2
Total for 26 weeks...	765,212½	6,46,822 1 10	42,701 19 10	3,427,236 13½	10,29,083 13 0	91,332 12 10	137,124 12 8
COMPARISON							
Total for corresponding week of previous year ...	39,399½	24,359 12 7	2,232 19 7	118,808 20	17,110 4 10	1,568 8 11	3,801 8 6
Per mile of railway corresponding week of previous year ...	255	155 10 5	14 5 4	750 0	109 5 4	10 0 6	24 5 10
Total to corresponding date of previous year ...	727,920	4,06,098 6 8	37,225 13 8	2,069,031 35	6,04,221 14 6	55,389 0 2	92,612 13 10

NALHATI STATE RAILWAY

Approximate Return of Traffic for the last 3 days ended 31st December 1872, on 27½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the three days ...	589	634 0 0	63 8 0	8,143 0	661 0 0	66 2 0	129 10 0
Or per mile of railway ...	21	230 0 0	23 0 0	297 0	243 0 0	24 0 0	47 10 0
For previous 21 weeks of half-year ...	28,708½	22,003 0 0	2,200 6 0	91,850 0	8,376 0 0	837 12 0	3,037 18 0
Total for 21 weeks & 3 days ...	29,297½	22,637 0 0	2,263 14 0	100,002 0	9,037 0 0	903 14 0	3,167 8 0
COMPARISON.							
Total for corresponding week of previous year ...	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ...	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ...	.....	.....	.....	.....	.....	.....	.....

NALHATI STATE RAILWAY.

Approximate Return of Traffic for the first 4 days of week ended 1st January 1873, on 27½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for 4 days of the week ...	810	663 0 0	66 6 0	4,709 0	348 0 0	34 16 0	101 2 0
Or per mile of railway ...	30	24 0 0	2 8 0	173 0	13 0 0	1 6 0	3 14 0
For previous weeks of half-year ...	.....	.....	.....	.....	.....	.....	.....
Total for 1 week ...	810	663 0 0	66 6 0	4,709 0	348 0 0	34 16 0	101 2 0
COMPARISON.							
Total for corresponding week of previous year ...	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ...	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ...	.....	.....	.....	.....	.....	.....	.....

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for the last 3 days of December 1872, on 28 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the last 3 days ...	2,878	400 0 0	40 18 0	6,936 0	214 0 0	21 8 0	63 6 0
Or per mile of railway ...	.....	.....	.....	.....	.....	.....	.....
For previous 26 weeks of half-year ...	134,315	22,505 0 0	2,250 10 0	360,232 0	11,535 0 0	1,153 10 0	3,404 0 0
Total for 26 weeks and 3 days ...	137,193	22,914 0 0	2,291 8 0	367,188 0	11,749 0 0	1,174 18 0	3,466 6 0
COMPARISON							
Total for corresponding week of previous year ...	6,856½	955 5 3	95 10 8	9,004 10	288 4 6	28 16 7	124 7 3
Per mile of railway corresponding week of previous year ...	245	34 1 11	3 8 3	321 23	10 4 9	1 0 7	4 8 10
Total to corresponding date of previous year ...	18,654½	19,227 15 3	1,922 18 0	267,091 16	8,464 3 0	846 8 9	2,769 6 11

EAST INDIAN RAILWAY—JUBBULPORE LINE.
Approximate Return of Traffic for last 3 days of December 1872, on 223½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for 3 days	2,177	14,540 6 9	1,332 17 5	27,694 0	8,551 2 3	783 17 1	2,116 14 6
Or per mile of railway ... ..	.....	65 0 11	5 19 3	.....	38 4 2	3 10 2	9 9 5
For previous 25½ weeks of half-year	122,090	3,51,552 0 2	32,225 12 0	1,037,835 10	3,23,520 2 0	20,656 11 3	61,882 3 3
Total for 26½ weeks	124,270	3,66,092 6 11	33,558 9 5	1,065,529 10	3,32,077 4 3	30,440 8 4	63,968 17 9
COMPARISON.							
Total for corresponding 1 day of previous year	686	2,171 1 6	199 0 4	9,088 0	2,874 4 11	263 9 7	462 9 11
Per mile of railway corresponding 1 day of previous year ... ..	.....	9 11 9	0 17 10	.....	12 14 3	1 3 8	2 1 6
Total to corresponding date of previous year	110,179	3,45,831 0 11	31,701 3 7	1,146,340 0	3,25,323 3 7	20,821 5 11	61,522 9 6

EAST INDIAN RAILWAY—MAIN LINE.
Approximate Return of Traffic for last 3 days of December 1872, on 1,280 miles open.

		Rs. A. P.		£ s. d.		Mds. Srs.	Rs. A. P.		£ s. d.	
Total traffic for 3 days	55,523	41,180 14 11	4,040 18 5	297,807 20	1,44,821 15 0	13,275 6 8	17,325 5 1			
Or per mile of railway ... ..	.....	34 8 3	3 3 3	.....	113 2 3	10 7 5	13 10 8	
For previous 25½ weeks of half-year	2,558,704	36,76,759 8 8	337,036 5 10	13,300,721 30	74,28,597 6 3	690,954 15 2	1,017,991 1 0			
Total for 26½ weeks	2,614,227	37,20,940 7 7	341,086 4 3	13,598,529 10	75,73,419 3 3	694,230 1 10	1,035,316 6 1			
COMPARISON.										
Total for corresponding 1 day of previous year	10,547	29,016 11 9	1,834 17 4	99,921 20	49,785 11 8	4,563 13 10	6,398 11 2			
Per mile of railway corresponding 1 day of previous year ... ..	.....	15 10 2	1 8 8	.....	38 14 4	3 4 4	5 0 0	
Total to corresponding date of previous year	2,480,635	35,65,132 12 7	326,803 16 9	12,761,406 10	76,70,428 8 4	703,122 12 3	1,029,926 9 0			

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.
Approximate Return of Traffic for 4 days of week ended 4th January 1873, on 28 miles open.

		Rs. As. P.		£ s. d.		Mds. Srs.	Rs. As. P.		£ s. d.	
Total traffic for the week	3,998	566 0 0	56 12 0	9,202 0	285 0 0	28 10 0	85 2 0			
Or per mile of railway	143	20 3 5	2 0 5	329 0	10 2 10	1 0 4	3 0 9			
For previous 4 weeks of half-year	.....	.....	.....	.....	.....	.....	.....
Total for 1 week	3,998	566 0 0	56 12 0	9,202 0	285 0 0	28 10 0	85 2 0			
COMPARISON.										
Total for corresponding week of previous year	5,814	852 0 0	85 4 0	11,016 0	336 0 0	33 12 0	118 16 0			
Per mile of railway corresponding week of previous year	208	30 6 10	3 0 10	393 0	12 0 0	1 4 0	4 4 10			
Total to corresponding date of previous year	5,814	852 0 0	85 4 0	11,016 0	336 0 0	33 12 0	118 16 0			

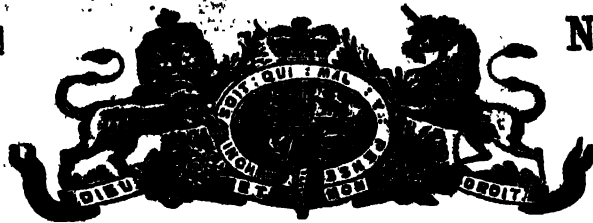
EAST INDIAN RAILWAY—JUBBULPORE LINE.
Approximate Return of Traffic for first 4 days of January 1873, on 223½ miles open.

		Rs. As. P.		£ s. d.		Mds. Srs.	Rs. As. P.		£ s. d.	
Total traffic for 4 days	2,900	14,380 4 5	1,318 3 10	29,102 0	9,669 3 3	886 6 11	2,204 10 9			
Or per mile of railway ... ..	.....	64 5 0	5 17 11	.....	43 4 2	3 19 4	9 17 3	
For previous weeks of half-year	.....	.....	.....	.....	.....	.....	.....
Total for 4 days	2,900	14,380 4 5	1,318 3 10	29,102 0	9,669 3 3	886 6 11	2,204 10 9			
COMPARISON.										
Total for corresponding 6 days previous year	4,840	15,033 7 7	1,378 1 4	60,564 10	17,522 4 3	1,006 4 2	2,084 5 6			
Per mile of railway corresponding 6 days of previous year ... ..	.....	67 6 8	6 3 7	.....	78 9 2	7 4 1	13 7 8	
Total to corresponding date of previous year	4,840	15,033 7 7	1,378 1 4	60,564 10	17,522 4 3	1,006 4 2	2,084 5 6			

EAST INDIAN RAILWAY—MAIN LINE.
Approximate Return of Traffic for first 4 days of January 1873, on 1,280 miles open.

		Rs. As. P.		£ s. d.		Mds. Srs.	Rs. As. P.		£ s. d.	
Total traffic for 4 days	57,247	98,063 7 6	8,989 3 0	405,840 30	212,970 11 6	19,523 6 4	28,511 9 4			
Or per mile of railway ... ..	.....	76 9 9	7 0 5	.....	166 6 2	15 5 1	22 5 6	
For previous weeks of half-year	.....	.....	.....	.....	.....	.....	.....
Total for 4 days	57,247	98,063 7 6	8,989 3 0	405,840 30	212,970 11 6	19,523 6 4	28,511 9 4			
COMPARISON.										
Total for corresponding 6 days previous year	85,800	138,053 6 7	12,054 17 11	687,499 30	478,616 12 8	43,873 4 2	50,528 2 1			
Per mile of railway corresponding 6 days previous year ... ..	.....	107 13 8	9 17 9	.....	373 14 9	34 5 6	44 3 3	
Total to corresponding date of previous year	85,800	138,053 6 7	12,054 17 11	687,499 30	478,616 12 8	43,873 4 2	50,528 2 1			

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SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, JANUARY 22, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE, may receive the SUPPLEMENT separately on payment of Six Rupees per annum, if delivered in Calcutta, or Twelve Rupees if sent by Post.

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RESOLUTION ON DISPENSARY REPORT, 1871.

JUDICIAL DEPARTMENT.

MEDICAL.

Calcutta, the 21st January 1873.

READ—

A letter, No. 795, dated the 5th October 1872, from the Inspector-General of Hospitals, Indian Medical Department, submitting the report on the Charitable Hospitals and Dispensaries in the Lower Provinces for the year 1871.

1. THE printing of the report has been delayed in the Secretariat office owing to press of other work, but this is of the less importance, as under the system introduced in March last the Inspector-General has passed orders separately on each dispensary report as received, thereby relieving the Government of the necessity of scrutinizing details, and bringing prominently before the local authorities those points which require action. Still, it is very desirable that statistical information should be laid before Government within a reasonable time after the close of the year to which it relates, and it appears that some civil surgeons did not submit their returns till August, thereby keeping back most seriously the preparation of the Inspector-General's summaries. The Lieutenant-Governor will have it once for all understood that he insists upon prompt and punctual submission of annual returns in all departments. It is very evident from the remarks in some of the Deputy Inspector-General's reports that unpunctuality on the part of the civil surgeons leads to unpunctuality and carelessness on the part of their subordinates. The Lieutenant-Governor requests that the

Inspector-General will report to Government annually, in the month of April, the names of those medical officers whose returns have not been received by the end of March, when steps will be taken to deal with such delays. Magistrates and sub-divisional officers ought also to ascertain that the medical returns of the institutions in their jurisdiction have been duly submitted. If the civil surgeon finds that he cannot get the annual returns from his subordinates by the end of January, he will report the fact to the District Magistrate, who will himself, or through his sub-divisional officers, force upon the medical subordinates the prompt despatch of the required papers; and in case of continued neglect, will suspend payment of the salary and allowance bills of the subordinates concerned.

2. The total number of dispensaries open during 1871 is three over the number open throughout 1870. There were at the close of the year 73 institutions in charge of sub-assistant surgeons and apothecaries, 62 in charge of native doctors, and 25 attached to sub-divisional charges. Excluding six institutions situated in Calcutta and its suburbs, there were thus 154 institutions established in the interior of Bengal for dispensing charitable medical relief. There has not been any very material increase in the number of dispensaries during the year, though it would appear from paragraphs 8 and 9 that the number of the more important dispensaries has relatively increased. The Lieutenant-Governor desires that in future all the hospitals and dispensaries situated in Calcutta and its suburbs should be treated in the report on metropolitan medical institutions. The institutions shown on the margin should therefore be excluded next year from this dispensary report.

Sukea's Street Dispensary.
North Suburban Hospital.
Alipore Dispensary.
Bhowanipore.
Garden Reach.
Howrah Hospital.

3. Of 158 institutions shown in statement 2, 107 treated both out-door and in-door patients, one received in-door patients only, while 50 gave relief only to out-door patients. The Lieutenant-Governor is glad to see that the Inspector-General has impressed upon committees the propriety of providing in-door accommodation in all cases where the means are available. Surplus funds cannot better be utilized than in this way, and it is in this way only that surgical cases can be properly dealt with.

4. It is satisfactory to observe that the attendance of both in-door and out-door patients has increased, while the mortality among the former has diminished. The total number treated amounted to 423,420 as against 402,441 in 1870, while the mortality was 15.41 per cent. on 17,892 in-patients as against 16.17 on 17,481. 72.04 of the in-door patients were cured or relieved. No statistics of results in cases of out-door patients are available.

5. The total number of surgical operations performed has risen from 5,944 to 8,547, though, owing to a stricter classification, the number of major operations shows a decrease. The Lieutenant-Governor views with great satisfaction the increase in surgical cases, in which at any rate the benefits conferred are clear and undoubted. It cannot be that we yet touch a tithe of the cases in the country requiring serious surgical treatment, and no effort should be spared to encourage the resort to our hospitals of such cases. The mortality in cases of serious operations is shown at 38 per 1,000 against 155.7 in the Medical College, and 116.2 in the Chandney Hospital, Calcutta. This is a remarkable difference, which is seen also when we look to the results in one particular operation (lithotomy), the death-rate being 86 per 1,000 in the mofussil against 166 and 253 in the two Calcutta institutions named above. The Lieutenant-Governor believes that very similar results are to be found in the comparative mortality of metropolitan and provincial hospitals at home. In the *Edinburgh Review* for October last, page 495, this subject was very strikingly elucidated. He would beg of the Inspector-General to keep the subject specially in view, and to report whether the classification is the same and the mortality in small hospitals is really in much smaller proportion than in large ones.

6. In paragraph 14, the dispensaries whose death-rate was particularly heavy are set out, and the causes of this explained. In the Dacca circle, the Assam dispensaries, to which broken-down labourers are sent, show most unfavour-

ably. The Lieutenant-Governor desires that inquiry should be made whether the hospital deaths are included in the returns of mortality for tea estates. In the other circles the only explanation is that many cases are brought for treatment in a moribund state. From the reports in the appendix it would appear that in some instances cholera affected the death-rate. The Inspector-General's remarks upon the creation of separate moribund wards are judicious. It would seem better to separate those cases which from the nature of the disease are loathsome and dangerous to other sufferers than to relegate to a separate ward those whom the medical officer in charge doubts his ability to cure.

7. The idea of providing separate accommodation for a better class of patients would be unobjectionable if some small charge were made on this account, to be credited to the dispensary funds. But it should always be remembered that the primary object of such institutions is charitable, and that to make invidious distinctions among those receiving gratuitous advice would certainly not tend to popularize the system.

8. The character of the diseases treated varies very little from year to year. The distinctive feature of 1871 was the comparative absence of cholera, especially on the great pilgrim routes. Fevers were, however, as might have been expected from the excessive rainfall of the year, more prevalent than usual. Fever was also more fatal than in the two preceding years. Splenic diseases, liver diseases, dysentery, and debility, were all more fatal than usual. It appears that in medical as, opposed to surgical cases, the mortality rates for each class are much the same in Calcutta as in the interior.

9. The table showing caste and sex of patients gives a smaller attendance of females during the year under every heading save that of Europeans. The falling off is very marked among the females of "other castes," where the percentage of in-door patients has fallen from 32.8 to 21.3. Inquiry should be made whether this can in any way be explained. The attendance of children was greater than in 1870.

10. The Lieutenant-Governor approves of the amended form of Table V ~~which~~ the Inspector-General proposes to substitute next year for the present one, to show more clearly the income and expenditure of the year with reference to the amounts contributed by Government and other sources. The heading "Received from local sources" should, however, be "Received from local and other sources excluding Government."

11. The total income of the dispensaries, including balances, was Rs. 4,17,451, the expenditure Rs. 2,97,377, leaving a balance of Rs. 1,20,073, as against Rs. 1,05,577 in 1870. The income and balances are steadily increasing. It is not, however, satisfactory to note that the increase in 1871 is due to increased Government grant, and largely increased European subscriptions, while the income from local funds, invested capital, and native subscriptions, all show a falling off from 1870. The Lieutenant-Governor begs that every effort may be made to induce the richer natives to assist in this way their poorer and disease-stricken fellow countrymen.

12. The Lieutenant-Governor has already, in a circular dated 27th December 1872, expressed an opinion that the heavy calls made upon Government for medical relief, while at the same time the accumulated and unutilized funds of dispensaries are increasing, render it necessary to review the position of each of these institutions and to settle how far they may become more self-supporting. Under the new rules for the grant of Government aid passed last year care is taken that subscriptions are utilized in a proper way, and that they are duly guaranteed and regularly collected. Hitherto, as shown in paragraph 28 of the report, the guaranteed subscription has in many cases been only nominal, Government paying all the real expenses of the dispensaries. Had, indeed, the realizations been equal to the nominal subscriptions, the balances of dispensaries would have been far heavier than they are. Government has no wish to diminish the sum total of the aid it gives, but it is anxious to distribute it more usefully and more widely. The resolution above referred to is designed to have this effect, and meets the views now expressed by the Inspector-General. The case of all those dispensaries drawing money grants from Government must now be

separately gone into. Some of these concessions were made for special reasons, the form of which has probably long passed away, and there seems no good ground for treating exceptionally in this respect some of the main dispensaries at large Sudder Stations, while others at smaller places are self-supporting. The Inspector-General is requested to report separately on each of these dispensaries, showing the amount and reasons of the grant, and making any suggestions that may seem necessary in connection with the subject of its revision. The Lieutenant-Governor also invites proposals for utilising all funds and machinery that can be made available in the establishment of relief centres at places where medical aid is much required. At present the want of qualified men may create a difficulty while so many are employed in the Burdwan fever tracts, but as soon as they become available they should be used elsewhere.

13. It is by no means satisfactory to learn that only twenty-seven municipalities contribute to the support of dispensaries, and that the total amount of their subscriptions is only Rs. 12,573, or 5 per cent. of the total dispensary income. The Lieutenant-Governor quite agrees with the remarks of the Inspector-General on this point, and he trusts that Commissioners and Magistrates will represent to the municipalities and town committees their duty in this respect.

14. The amount of subscriptions received from private individuals is also by no means gratifying. If we except the thirty-two institutions which are supported entirely by one individual with or without the aid of Government, it appears from Table VI that only about Rs. 44,000 come from general native subscriptions, while about Rs. 40,200 come from ordinary European subscribers. The native subscriptions are petty in the extreme, compared with the number and means of the native gentry of Bengal. A large proportion of even the small sum subscribed comes from men in the employment of Government, and pleaders about the courts.

15. The summary of expenditure in paragraph 29 shows increased cost of diet, but a lessening relative expenditure on that account; increasing outlay on attendants' wages, with which the Lieutenant-Governor is glad to see the Inspector-General is dealing; and an increase in the percentage spent in medical officers' salaries, due, no doubt, to the advance of several institutions from a lower to a higher grade, as explained in paragraph 6.

16. The increased floating balance of dispensary income has been the subject of frequent orders from Government. It is the result of a system under which subscriptions were realised for no definite object, while all the principal expenses were thrown on Government. At present no dispensary is sanctioned without a proper allocation of the expenditure between Government and the subscribers. When the replies are received to the circular already referred to, the Lieutenant-Governor will be in a position to press for a proper employment of these balances. Meantime, he is glad to see that the Inspector-General has urged upon the local committees the propriety of utilising them.

17. The Lieutenant-Governor is not at all satisfied with the way in which the important duty of inspection was performed during 1871. The Deputy Inspectors-General seem to have done as much as under the particular circumstances of their circles and the special duties imposed on them could well be expected. Dr. Francis, in particular, deserves thanks for his activity. But it is lamentable to note that 16 per cent. of the mofussil dispensaries were never visited at all by civil surgeons, while 33 per cent. were only visited once. Particular explanation must be called for from Dr. Earle (Nuddea) of his entire neglect of this duty. The Lieutenant-Governor desires that the Inspector-General will again draw the attention of all civil surgeons to the orders on the matter, and submit a nominal list with his next report showing how this duty has been performed. Commissioners will also be requested to enjoin on magisterial and other officers the propriety of their visiting dispensaries in the course of their tours in the districts, and recording remarks on the state of things as found by them. It is much to be regretted that native gentlemen and dispensary committees generally take so little interest in these institutions. The Lieutenant-Governor hopes, however, that the habit of meeting and discussing matters in which they are financially or directly interested on the district

road and educational committees, may induce the principal residents to take a more active part in dispensary management.

18. The working of the experiment of training native midwives has been separately reported to Government. The results are not very encouraging, but the Lieutenant-Governor is unwilling to abandon the attempt altogether.

19. In the 36th paragraph of the report the Inspector-General proceeds to review the principal events in the medical history of the year. General absence of small-pox, comparative freedom from cholera epidemic, and unusual prevalence of fever, were, as has been already noted, the main characteristics of 1871. Orissa seems to have been the most favored division as regards public health. The pilgrim routes were free from cholera, and fever did not prevail as elsewhere. The sketch which is given of the Burdwan endemic, and the measures adopted for medical relief, are correct and useful. Much has, however, been written and laid before Government since the time to which the report refers, and it is unnecessary here to discuss the subject further. The Government is doing all it can to afford relief, and is making the necessary investigations with a view to larger measures of drainage, should it appear that these are called for or likely to be of benefit. The Inspector-General is convinced that the fever is not in any sense or manner a contagious disease; but it is noted that Dr. Barker in Beerbhoom reports that he is strongly of opinion that the fever there could not have been generated in the parts it affected, but was introduced from Burdwan either by human intercourse or through the atmosphere, aided by the peculiar rainy season, cloudy weather, and moist atmosphere. The Lieutenant-Governor has already ordered careful topographical inquiry in Beerbhoom and Midnapore, where the fever has taken hold of villages hitherto unaffected, and he trusts that the Inspector-General will order such careful observations of temperature and other meteorological facts as may help to elucidate the mystery of this disease. Dr. Elliot's report in the appendix is very valuable; and the Lieutenant-Governor will take this opportunity of thanking him and the Deputy Inspector-General Dr. Saunders, as well as the present Sanitary Commissioner Dr. Jackson, for the work done by them in these fever-stricken districts.

20. The results of the experiment of selling medicines at cost price have also been separately reported. They are on the whole decidedly encouraging. The Lieutenant-Governor will be glad to know the result of the experimental sale of trusses mentioned in paragraph 48.

21. The Lieutenant-Governor will be glad if the Inspector-General will place himself in communication with Colonel Pughe and devise a simple form of sickness and mortuary return for the police force, and settle the best mode of having these made up, reporting the result. It is of course desirable to have this information as the police are serving in every district of Bengal and their vital statistics would be to some extent a test of relative healthiness.

22. Commissioners will be asked to report on the working of Dr. McLeod's form of *post-mortem* report.

23. The other matters noticed by the Inspector-General call for no special remarks from Government.

24. The Lieutenant-Governor has only, in conclusion, to thank Dr. Brown for his able and efficient administration of his department, and for the ready aid and sound advice he has given to Government on every matter on which he has been consulted. Dr. Brown has been fortunate on his part in having a Secretary like Dr. McLeod, to whom the Government has been indebted from time to time for much useful assistance always most cheerfully rendered. The careful way in which the details of the present report have been worked out also reflects much credit on Dr. McLeod. His Honor has to thank Drs. Saunders, Francis, and Buckle for their assiduous devotion to their duties, and for many able reports on administrative questions submitted through the Inspector-General.

ORDER.—Ordered that a copy of this resolution be forwarded to the Inspector-General of Hospitals, Indian Medical Department, for information and guidance.

Also that extracts paragraphs 1, 13 and 17 be forwarded to all Commissioners for information and communication to the Magistrates of their divisions.

DILATORY DISPOSAL OF CRIMINAL CASES.

No. 3, dated Burdwan, the 3rd January 1873.

From—C. T. BUCKLAND, Esq., Commr. of the Burdwan Division,
To—The Offg. Secy. to the Govt. of Bengal, Judicial Department.

UNDER demi-official instructions from Mr. Secretary Bernard, I have the honor to submit, for the information of the Lieutenant-Governor, copy of the decision of the Sessions Judge of Hooghly, in the case of Kufulooddeen, appellant, in which Mr. Prinsep had occasion to comment very forcibly on the conduct of Deputy Magistrate Baboo Dwarkanath Banerjea in dealing with that case.

2. In compliance with the Judge's directions, the Magistrate of Howrah (Mr. Hewitt) has examined the records of several other cases which were pending before Baboo Dwarkanath Banerjea, and has sent me a copy of the remarks which he has submitted to the Judge regarding them. I now forward copy of them for the Lieutenant-Governor's information.

3. As Baboo Dwarkanath Banerjea has been transferred to another division, and it is not desirable that he should remain any longer at Howrah, I have requested the Magistrate at once to relieve him of his duties at Howrah and to direct him to proceed to join his new appointment; but I beg to state that in my opinion Baboo Dwarkanath Banerjea should be required to submit an application for pension, as his age and the state of his health disqualify him for the efficient discharge of his duties as a Deputy Magistrate and Deputy Collector.

No. 194.

KUFULOODDEEN Appellant.

THE appellant is a pharcedar and has been convicted of having received an illegal gratification. He should, on the evidence, if convicted at all, have been convicted of extortion, of which he was also charged, for the act of which he was convicted was of obtaining some money from a man against whom information of the commission of an assault had been made to him under threat, that if the money was not paid he would be sent up to the Magistrate.

The Deputy Magistrate has believed the evidence and has convicted the accused. I am at all times very unwilling to interfere with the findings of Magistrates when they depend merely on the credibility to be attached to the evidence of witnesses, because it is evident that a judicial officer who has only the record has not the same or equal opportunities of arriving at a correct conclusion on such a point as the officer before whom the witnesses have made their statements, but in this case the improbabilities of the truth of the evidence are so strong that I have no alternative but to reverse the finding of the Deputy Magistrate, because I consider that he has not sufficiently borne them in mind in determining the weight to be given to the evidence.

The defence made is that the case is one got up by the notorious enemy of the appellant the gomashita. That ill-feeling does exist, is evident from the records of the courts and from the admitted fact that he backed up the prosecution and was in court throughout the trial. The witnesses are all more or less connected with him. The principal witness is his own brother, and the complainant is the relative of his kept mistress. With these feelings of animosity it is most improbable that appellant should have openly committed the act charged in the presence of his enemies, and that they should have been the prominent actors on the other side. Independently of these considerations there are other points in the evidence which at once excite much suspicion, and I therefore think that the appellant has been wrongly convicted, and direct that he be released.

The proceedings of the Deputy Magistrate in this case are such as I did not believe could have been found in our courts under the rapid system of trial introduced by the code, and are most discreditable to him. The case began on petition of the 18th July. It is a very simple one, and yet was not decided until the 18th November. I find that it was no less than seventeen or eighteen times before the Deputy Magistrate, instead of being decided in two sittings.

The complainant's petition bears date 18th July, and the case was thereon referred to the Deputy Magistrate for trial. The complainant was, however, not examined until the 23rd July. No reason is given for the delay, and if it is usual in the Howrah courts it should at once be put an end to, for the complainant should have been examined on the 18th or at least on the 19th. On that date the Deputy Magistrate ordered summons to issue on the complainant's witnesses and on the accused, fixing 8th August as the date for trial. On the 8th August, when it would seem all the parties attended, the Deputy Magistrate recorded that he had no leisure in consequence of the number of police cases under trial, and he accordingly postponed the case until the next day, taking recognizances from the witnesses and bail from the accused. It does not appear that the case came on for trial on the 9th, but on the 10th August an order was recorded, as complainant represents, that his witnesses are suffering from dengue fever and asks for postponement, that is, postponed until the 19th August. How unlikely it was that so many men suddenly should all be stricken with dengue fever does not appear to have occurred

to the Deputy Magistrate. I have little doubt that the witnesses were tired of dancing attendance at the Deputy Magistrate's court and went home, and seeing the protracted character of the proceedings, I cannot say that they would not have been justified in so doing. On the 19th August the accused were absent, warrants were issued, and the suitors were called upon to show cause why the security should not be forfeited, and though the accused seem to have been represented by a mooktear who could have cross-examined the witnesses who were present, they were discharged without examination. On the 3rd September the sureties produced the accused who, they represented, had been ill, but whether any inquiry was made on this point does not appear. It would seem that this excuse was accepted, for I can find nothing more on this subject. However, although this very simple case had been frequently postponed, the Deputy Magistrate again postponed it for want of leisure. On the 5th September it would seem that the Deputy Magistrate fell ill, so the case was indefinitely postponed until his recovery and return to office, because the other Magistrates are stated to have been unable to hear the case. The witnesses were again present and had to execute recognizances to appear when called for.

On the 11th the 20th was fixed for hearing, but the witnesses were not examined until the 24th, the complainant and the accused being examined on the 23rd. Nothing definitely was done, and the case was again postponed until the 5th October. On the 4th, however, it would seem that on the application of the complainant a warrant was issued for the arrest of a witness, and on that day also the 22nd was fixed for hearing. On the 22nd again, notwithstanding that the case had been so often up for hearing, it was again postponed because the Deputy Magistrate had no leisure, and because one of the accused, Mohesh, was absent. I confess I am surprised that any body should ever attend voluntarily before any Magistrate who so constantly discharges witnesses and parties without examination, and postpones a simple trial like this (and I suppose this is not a solitary instance) week after week without making any progress towards decision. The Deputy Magistrate here again went through the farce of calling upon the sureties of Mohesh to shew cause why their bonds should not be enforced, when he should have known that their absence was attributable to no one's fault except his own. On 23rd October certain records were called for, and the case was postponed again until the 30th. Intermediately, however, on the 26th October one witness was examined, one of the accused was discharged, and the other was put on his defence. It is strange that the evidence of this one witness should have had such an effect in the case one month exactly after the bulk of the witnesses for the prosecution had been examined, and three months after the first examination of the complainant. Witnesses for the defence were however summoned, and the 30th was fixed for trial. The witnesses somehow or other did not attend on that day. No notice was taken of this, but the 8th November was fixed. On that day, instead of at once completing the case, three witnesses only for the defence were examined, and for want of leisure the case was again postponed until the 12th. On the 12th arguments were heard, and the case was postponed because the complainant's mooktear said he would make an application to call for the record of the previous conviction of the accused. A most improper order for the previous conviction ought not to have been considered until the accused had been convicted, and it remained to determine the sentence to be imposed. When the application was made, instead of at once sending for the records, it was ordered to be placed with the record. These records were called for on the 13th, but on the 15th they were reported as not found. On the 16th they were produced, but as some of the *anglans* of the Deputy Magistrate had gone to give evidence before the Additional Judge, and the records found had to be compared with that of the case under trial, there was a further postponement until the following Monday, when at last the case was decided. As these records were in Bengali, the native language of the Deputy Magistrate, the reason for the postponement is absurd.

I have had very great difficulty in extracting the above particulars, and it has occupied much valuable time which should have been devoted to other work, but I have been strangely enlightened as to the proceedings of Baboo Dwarkanath Banerjea. I could not have believed that such proceedings were to be found in any Magistrate's court, still less in a Suburban Court at Howrah. The facts disclosed speak for themselves. The Deputy Magistrate's delatoriness is deserving of severe censure, and also, it is not creditable to the Magistrate of Howrah that such proceedings should have passed unknown and unchecked. I request that the Magistrate will withdraw to his own file all cases now pending before Baboo Dwarkanath Banerjea, and that he will report on the proceedings therein, and more especially in the cases for which explanation was given in the statements for November last.

SESSIONS COURT, HOOGHLY,
The 10th December 1872.*

H. T. PRINSEP,
Offg. Sessions Judge.

Memorandum on Cases tried by BABOO DWARKANATH BANERJEA, Deputy Magistrate.

HAVING had before me the cases pending on the file of Baboo Dwarkanath Banerjea, Deputy Magistrate, according to the directions of the Officiating Judge of Hooghly, dated 10th December 1872, I regret to be obliged to state that they disclose an ignorance of the provisions of the law and a dilatoriness in disposing of cases brought before him, which is anything but creditable to that officer. The first and worst case is that of the Queen *versus* Protap Cunder Patar and two others, stamp vendors, for various breaches of the rules laid down by Government. This case was brought on the Deputy Magistrate's file on the 26th September,

and the 3rd October was fixed for trial. On the 3rd October an order was recorded to the effect that, owing to press of work and the number of police cases before the Deputy Magistrate, it would not be taken up that day, and it was accordingly postponed till the 23rd October, after the holidays. On the 23rd the defendants were reported to have gone home, thinking that the case would not be tried. Their sureties were accordingly ordered to produce them on the 24th. On the 24th the case was again postponed till the 25th, and ordered to be brought up when the court opened. On the 25th the depositions of the witnesses for the prosecution were taken, and the defendant's answers were recorded, and at the end of the proceedings an order was passed that, as the defendant's mooktear objected that the Collector's sanction to the prosecution had not been obtained, a letter must be written to obtain the required sanction. This was the end of the first stage of the case.

On the 13th November a sanction for the prosecution was received from the Collector of Hooghly. On the 14th an order was passed to file the letter with the record, and no further order was passed till the 24th November, when the hearing of the case was fixed for the 27th, and all the witnesses re-summoned. On the 27th the case was postponed till the 28th, as a friend of one of the witnesses was ill. On the 28th the case was again postponed till the 30th, as the Deputy Collector, Baboo Gour Dass Bysack, was too busy to attend to give evidence. On the 30th the evidence for the prosecution and the defendant's replies were heard, and an order recorded that as it was necessary to look at the Stamp Act and rules, the case was remanded till the 10th December. On the 10th December the collectorate nazir was examined, and it was again remanded till the 14th December for the attendance of the defendant's witnesses. On the 14th these witnesses were examined, and then, owing to the lateness of the hour, was remanded till the 16th. On the 16th there was another remand till the next day to look at the stamp rules. On the 17th the collectorate sheristadar was examined as to whether the defendants had received notice of the stamp rules, and an order was passed to the nazir to report whether there was anything in the records to show that defendants had received notice of the rules of the 20th September 1870. On the 18th the nazir's report was received; the case postponed to the 19th, as the Deputy Magistrate was going to the levee. On the 19th it was at last decided.

The fact that a simple case of this kind was remanded no less than seventeen times, and was nearly three months on the Deputy Magistrate's file, speaks for itself, and I much regret to have to remark on such gross procrastination and carelessness in the case of an officer of Baboo Dwarkanath Banerjee's age and experience.

Of the remaining four cases on his file, which had on the 13th instant proceeded beyond the stage of summoning the witnesses for the prosecution, there is nothing to remark about two cases, but the other two show a similar procrastination to that remarked above, and one seems to me to show a totally mistaken view of the law.

This latter case is the charge of illegal confinement, brought by Bhyrub Napat against Jodoonauth Mozoomdar and others. The case was first heard on the 3rd December, when the witnesses for the prosecution were examined and the statements of the defendants taken, the defendants being further represented by a mooktear. A charge of criminal trespass was recorded against one of the defendants, the crime of wrongful restraint being only considered to be proved against the others. The 12th was fixed for the hearing of the witnesses for the defence. On the 12th, when the case was called up, defendants filed a petition stating that their witnesses were not present, but that they would produce them on the 13th instant, and an order was recorded that should they fail to do so, the necessary orders will be passed on the 13th December. Defendants filed another petition asking that plaintiff's witnesses be recalled, and this was ordered to be put with the papers of the case, but no notice appears to have been taken of the non-attendance of the witnesses. On the 14th the petition and the papers of the case were laid before the Deputy Magistrate, and the police were ordered to send in plaintiff and his witnesses. This latter order was clearly illegal and improper, and the recall of plaintiff and his witnesses seems to me to have been made under a totally mistaken view of the law. Section 252 of the Criminal Procedure Code does give persons charged with any offence the right to recall the witnesses for the prosecution and re-examine them, but this right can, as it appears to me, in cases like the present, only be exercised when the application is made at the proper time when the charge was recorded. In this case the adverse party had a full opportunity of cross-examining the witnesses for the prosecution when the case was first heard, and if they had not been satisfied with that opportunity, they might have made their application after the charge was drawn up, and before the witnesses had gone to their homes, instead of waiting till ten days had elapsed, and the day fixed for the hearing of the defence had passed. It is absurd to suppose that the legislature would have intended that prosecutors and witnesses should be liable to be causelessly dragged long distances, and have to make frequent attendance in court merely to satisfy a frivolous demand, made, as it appears to me, simply for the purpose of procrastinating the case, to say nothing of the further hardship the witnesses were exposed to, police interference. I have since taken the case on my own file, and a more simple one I never saw. There is only one issue to be tried, as to whether plaintiff went to the zemindar's chuterry of his own free will or whether he was brought by force, and the recall was totally unnecessary.

The other case on which I would remark is one of a charge under the local Act XXI of 1857 for fighting in the public street. The statements of the two parties showed that they were guilty of the offence charged, and the case ought to have been disposed of in one sitting; instead

of that the case was first heard on the 9th December, and witnesses for the defence were summoned on the 12th. On the 12th an order was recorded that if the witnesses for the defence are not present to-morrow, the necessary orders will be passed.

On the 13th it was recorded that as the witnesses summoned are police officers, and engaged in investigating a burglary case, the case is to be adjourned to the 26th instant, and the case still awaits disposal.

The 24th December 1872.

J. F. HEWITT, *Officiating Magistrate.*

(RESOLUTION.)

JUDICIAL DEPARTMENT.

JUDICIAL.

Calcutta, the 20th January 1873.

READ—

The letter No. 3, dated the 3rd January 1873, and enclosures, from the Commissioner of Burdwan.

1. The Lieutenant-Governor has read with grave dissatisfaction the account given in these papers of the mode in which Baboo Dwarkanath Banerjca has been in the habit of performing his duties. His Honor has taken due notice, in the General Department, of the Deputy Magistrate's conduct as a judicial officer; but he directs the publication of the Commissioner's letter and its enclosures, that district Magistrates and their subordinates may be warned of the kind of proceedings that are yet to be found wherever supervision is neglected, as it must have been in this case. The officer who was in charge of Howrah while these dilatory proceedings before the Deputy Magistrate were going on is, in fact, to blame as well as his subordinate. He could have had no proper cognizance of the working of his subordinates' courts.

2. The Deputy Magistrate whose proceedings gave rise to this case is an old officer who may take his pension; but the Lieutenant-Governor wishes all magisterial officers to understand that he is determined to put a stop to dilatory proceedings of this kind, and to insist, so far as the law permits, on a speedy and simple administration of criminal justice.

3. The Lieutenant-Governor is especially obliged to the Judge, Mr. Prinsep, for bringing this matter to notice, and for his constant and careful scrutiny of the proceedings which come before him.

4. With respect, however, to some part of the wording of Mr. Prinsep's remarks, the Lieutenant-Governor thinks it well to observe, in order to prevent misconstruction, that, strictly speaking, it was not competent to the Judge to *direct* the Magistrate to withdraw to his own file all cases pending before the Deputy Magistrate, and to report on the proceedings therein. The power to *direct* or authorise the transfer of cases is conferred by the Criminal Procedure Code only on the Magistrate of the district or division and the High Court, and in a sense on the local Government (sections 47, 64 and 48, 63). But the Government and the Magistrates of districts will be at all times ready to take fitting action on points to which their attention may be called by remarks of the Judges, and the Lieutenant-Governor has no doubt that in this instance it was in every way fitting that the Magistrate should do what the Judge suggested.

5. The Lieutenant-Governor also thinks it necessary to guard himself against his being supposed to publish for the information of Magistrates one doctrine contained in Mr. Prinsep's judgment, viz. that "the previous conviction ought not to have been considered until the accused had been convicted, and it remained to determine the sentence to be imposed." The Lieutenant-Governor believes this to be one of the most peculiar dogmas of English law, which in no sense or degree applies to the courts of the interior; and if there could be any doubt on that point the Lieutenant-Governor is informed that it has been settled by section 54 of the Evidence Act, which runs: "In criminal proceedings the fact that the accused person has been previously convicted of any offence is relevant," and, by section 5, evidence may be given in any proceeding of all relevant facts.

5. The Lieutenant-Governor observes that in the Officiating Magistrate's report it is stated that one case was "postponed till after the (Doorgah Poojah) holidays." Magistrates of all grades must understand clearly that criminal cases are not ordinarily to be postponed for such reason. If they have such cases before them, they must go through with them until they finish.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 18th, January 1873.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BURDWAN DIVISION.	1 Burdwan	Jan. 21st*	Nil.	Weather cloudy and cold.	Amun dhan wholly reaped, outturn estimated at 12 annas. Winter crops favorable.	Fever decreasing.
	2 Bancoorah	.. 18th	Nil.	Dry and cold	The paddy crops have been all cut. The rubee crops are doing well.	
	3 Raerbhoom	.. 18th	Nil.	Dry and fine	Rice crop completely cut everywhere but in parts of Kushba and Lobpore. The prospects of winter crops are favorable, but would be the better for some rain.	
	4 Midnapore	.. 18th	Nil.	Temperature very variable.	Boro crops are nearly ready for planting out. Other cold weather crops average.	
	5 Hooghly	.. 18th	Nil.	Fair, cold night and day. North wind; foggy.	Winter crops good; some of them are cut.	
	Howrah	.. 18th	Nil.	No rain. Wind varying from north to south.	The amun rice has been cut and has yielded a fair return. The cultivators have commenced cutting the sugarcane.	
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 24-Pergunnahs	.. 21st	Nil.	Cold and dry	Two-thirds of the amun paddy crop have been harvested, and other crops of the season are progressing favorably.	Fever and cholera abating.
	7 Nuddea	.. 18th	Nil.	Seasonable	The condition and prospects of the crops are generally favorable.	
	8 Jessore	.. 18th	Nil.	Cold. Foggy two days in morning.	Good.	
RAJSHAHYE DIVISION.	9 Moorsshedabad	.. 18th	Nil.	Fair and seasonable	Linseed, moong and kalai crops have been cut; cold weather crops doing well. Sugarcane has yielded a full crop in some places. In thanah Rughunathgunge silk-worms have turned out better than during the last three years.	
	10 Dinagepore	.. 18th	Nil.	Cloudy, but no rain	Good.	
	11 Maldah	.. 18th	Nil.	Fair, cool and foggy; 18th cloudy. Max. Therm. 65', Min. 57'. Baro. 29.750 and 29.550.	Hymunty dhan has been reaped and about 14 annas crop gained. Kalai is being reaped and is expected to yield a good harvest; other cold weather crops are in a promising state.	
	12 Rajshahye	.. 18th	Nil.	Fine and very cool	The amun and ropa dhan have almost been reaped. Indigo is flourishing; sugarcane and kalai are being cut. Rubee crops are also flourishing.	

* Telegram of the 21st January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>						
		1873.				
RAJSHAHYE DIVN.—(Contd.)	13 Rungpore	.. Jan. 18th	Nil.	Weather fine and less cold with fogs.	All favorable.	
	14 Bograh	.. .. 18th	Nil.	Fine and cold	The reaping of the amun crop is not yet finished entirely. The outturn, as already reported, is likely to be generally full. The minor crops promise well.	
	15 Pubna	... .. 18th	Nil.	Seasonable and fair; north-west wind.	The amun paddy has been nearly gathered, and the winter crops are progressing well.	
COOCH BEHAR DIVN.	16 Darjeeling	.. .. 18th	Nil.	Very cold and misty...	In the hills, wheat and barley are on the field and progressing well. In the teraie, mustard is only on ground; other crops have all been reaped.	District healthy.
	17 Julpigoree	... .. 18th	Nil.	Foggy, raw weather, promising rain.	Mustard crop average. Til crop cut, the outturn has been an average one. A very fair crop of hymanti dhan has been gathered.	
	Cooch Behar	... .. 18th	Nil.	Very cold. The mornings are foggy.	The reaping of dhan crop nearly finished. Prospects of cold weather crops continuing good.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 [*] Dacca	... .. 21st*	Nil.	Weather fair and cold. Cloudy for the last two days, and heavy rain in the north of the district on Sunday.	Prospects of crops favorable.	
	19 Furreedpore	... .. 18th	Nil.	Weather dry and cold.	The harvest continues good.	
	20 Backergunge	... .. 18th	Nil.	Cold	Good.	
	21 Mymensing	... .. 18th	Nil.	Fair	Crops continue to look well.	Cholera still prevails in many places, but small-pox is on the decrease.
	22 Sylhet	... .. 11th	'68	Cloudy and hot on Monday and Tuesday, followed up by a smart shower on Tuesday night, and a good deal of thunder on Wednesday night. Since then the weather has been very cold. The thermometer has been as low as 45° towards morning, lower than has been known for years.	Crops all cut. The harvest better than was last year, which was an unusually good one.	
CHITTAGONG DIVN.	23 Cachar	... .. 11th	1.0	Rain at night twice during the week. Very cold and clear since.	All dhan cut.	
	24 Chittagong	... .. 11th	Nil.	Fine. Has become cooler towards end of the week.	Generally favorable. Paddy nearly all cut. Nothing new to report.	
	25 Noakhally	... .. 11th	Nil.	Fair and cold	Amun dhan nearly gathered in. Cold weather crops progressing favorably.	

* Telegram of the 21st January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.	
BENGAL.—(Contd.)							
<i>Eastern Districts.—(Contd.)</i>							
1873.							
CHITTAGONG DIVN.—(Contd.)	26	Tipperah	18th	Nil.	Fair.	Amun dhan almost entirely harvested. General out-turn good. Prospects of cold weather crops good.	Cholera still in the district.
	27	Chittagong Hill Tracts	11th	Nil.	Very cold at night and morning. Cloudy on the 9th instant.	Cotton gathering is nearly over. The prospects of mustard are good.	
		Hill Tipperah	11th	Nil.	Generally clear, but occasionally cloudy during the first part of the week; the last two days being very cool.	The rice crop has all been reaped. Mustard still being gathered in. Prospects good.	
BEHAR.							
PATNA DIVISION.	28	Patna	21st*	0.03	Weather fine	The rubee crops are thriving well, though rain is still wanted in some parts of the district	Health of the district good.
	29	Gya	18th	Nil.	Fine, but not as cold as last week.	The crops are tolerably fair. Rain still wanted in some places.	
	30	Shahabad	18th	Slight rain	West wind, cold and clear till 16th; afterwards the wind veered to the east, and it became cloudy.	A small quantity of rain fell on the night of the 17th and morning of the 18th. It has been useful as far it goes, but the weather being at present hazy, there is some fear of blight. Rain is much required in south of the district. The crops on the ground generally good.	
	31	Tirhoot	18th	A little drizzling rain on the night of 17th.	Cold and wet	The rice is being stacked. The prospects of the rubee crops are hopeful. Poppy needs rain. The price of rice has descended to the minimum rate usual in every year during the harvest time.	
	32	Sarun	18th	Nil.	Cold and cloudy; east and west winds.	Cold weather crops thriving well, but rain is wanted.	
	33	Chumparun	18th	Nil.	Very cold; west and east winds. A slight drizzling rain on the morning of the 18th instant.	The prospects of the crops remain the same as last week. The rain has been beneficial to a limited extent.	
BHAUGULPORE DIVN.	34	Monghyr	18th	Nil.	Very cold; no rain	Excellent.	
	35	Bhaugulpore	21st*	17	.....	No change from last week; rubee crops very good.	Small-pox decreasing except in Banka subdivision. Fever in the north dying out. Fever is still prevalent, and there are some cases of small-pox.
	36	Purneah	18th	Nil.	Cold and seasonable	The aughany crop has now been reaped. There has been a good crop. Kalai and kurthee are now being gathered. A little rain is wanted for the rubee	
	37	Sonthal Pergunnahs	18th	Nil.	Cold and bracing	From 10 to 12 annas of a full dhan crop has been reaped, and rubee crops will probably yield 12 annas.	
ORISSA							
ORISSA DIVN.	38	Cuttack	21st*	Nil.	Weather changeable and cloudy.	Cold weather crops generally very good.	
	39	Pooree	11th	Nil.	Clear and cool	Thanks to the inundation of July, there is an unusual breadth of land under rubee crop, which is doing excellently.	
	40	Balasore	18th	Nil.	Foggy and variable	Good. The harvesting of winter crops has commenced.	

* Telegram of the 21st January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ATA NAGPORE.						
	<i>South-West Frontier Agency.</i>	1863.				
41	Hazareebaugh	Jan. 18th	Nil.	Bright and not so cold.	The rain reported as having fallen last week was very partial. Rain very much required, particularly in the northern and eastern portions of the district.	Small-pox still prevalent in Echack and Pachumbasub-division.
42	Loharduggah	" 18th	Nil.	Very cold at beginning of week. Afterwards getting warmer; high winds continue.	Fair rubee crops expected. Rain wanted.	
43	Singbhoom	" 11th	Nil.	Seasonable	Favorable.	
44	Maunbhoom	" 18th	Nil.	Fair and cold.	The rubee crops on the ground are doing well and promise a good outturn.	
ASSAM AND ADJACENT HILLS.						
45	Goalparah	" 11th	0.25	Cloudy from 6th to 8th, and there was some rain on the 8th between 1 and 2 p.m. Getting colder from the evening of the 8th.	No change since last report. Cold weather crops promise well.	
46	Kamroop	" 20th*	Nil.	Weather very cold, but fogs not so heavy.	Mustard, pulse, and sugarcane crops promise favorably.	Public health good.
47	Durrung	" 11th	0.15	Weather foggy; south-west breeze prevailing.	Sugarcane being cut; crop finer than usual.	
48	Nowgong	" 11th	Nil.	Weather cold, clear and seasonable.	All the rice crops have been almost cut; and gathered in. The mustard and kalai crops promise well, also sugarcane. Tea bushes being pruned on tea estates.	
49	Sebsaugor	" 11th	0.31	The weather during the week was cold and cloudy with a few light showers of rain.	The dhan crop is all reaped. Cold weather crops are satisfactory.	Cholera appears to have much decreased.
50	Luckimpore	" 11th	Nil.	Cold, cloudy weather with slight fogs in mornings, seasonable and favorable for all the staple crops of the district. At North Luckimpore sub-division the first part of the week was fair and dry. Towards the end cloudy, but no rain.	Rice crop all gathered. Sugarcane and pulses doing very well. Tea pruning in progress.	No further reports of cholera for some days.
51	Naga Hills	" 4th	Nil.	Fine throughout the district.	The whole of the crops may be said to have been gathered in, and are generally considered good.	
52	Khasi and Jynteah Hills.	" 11th	Nil.	The weather is very cold, and there has been frost at night.	At present there are no crops under cultivation.	
53	Garo Hills	" 11th	0.45	The weather has been generally fine. On Wednesday there was some rain.	The Garos are preparing their jooms.	

* Telegram of the 20th January received on the 21st.

Published for general information.

CALCUTTA,
22 January 1878.

J. WARE EDGAR,
Offg. Junior Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from	Rain from	RAIN FROM 1ST		REMARKS.	
			1st to 4th Jan. 1873.	5th to 11th Jan. 1873.	JANUARY 1873.	Up to date.		
			Inches.	Inches.	Inches.	1873.		
BENGAL.								
WESTERN DISTRICTS.								
BURDWAN.	Burdwan	Burdwan	Nil.	Nil.	Nil.	11th Jan.		
		Cutwa	ditto	ditto	ditto	ditto		
		Calna	ditto	ditto	ditto	ditto		
	Burdwan	Bood-Bood	ditto	ditto	ditto	ditto		
		Raneengunge	ditto	0.10	0.10	ditto		
		Jehanabad	ditto	Nil.	Nil.	ditto		
	Bancoorah	Bancoorah	ditto	ditto	ditto	ditto		
		Sooree	ditto	0.02	0.02	ditto		
		Midnapore	ditto	Nil.	Nil.	ditto		
	Midnapore	Tumlook	ditto	Not rec.	ditto	4th Jan.		
		Gurbetta	ditto	Nil.	ditto	11th Jan.		
	Hooghly	Contai	{ Dy. Collr.'s Office	ditto	ditto	ditto	ditto	
			{ Exo. Engr.'s Office	ditto	Not rec.	ditto	4th Jan.	
		Hooghly	Hooghly	ditto	Nil.	ditto	11th Jan.	
	Howrah	Scrapore	ditto	ditto	ditto	ditto		
Howrah		ditto	ditto	ditto	ditto			
CENTRAL DISTRICTS.								
PRESIDENCY.	Saugor Island	Saugor Island	ditto	ditto	ditto	ditto		
		Calcutta	ditto	ditto	ditto	ditto		
		Alipore	{ Dispensary	ditto	ditto	ditto	ditto	
	24-Pergunnahs		{ Jail	ditto	ditto	ditto	ditto	
		Busseerhaut	ditto	ditto	ditto	ditto		
		Barasat	ditto	ditto	ditto	ditto		
		Diamond Harbour	ditto	ditto	ditto	ditto		
		Barrapore	ditto	ditto	ditto	ditto		
		Satkharia	ditto	ditto	ditto	ditto		
		Barrackpore	ditto	ditto	ditto	ditto		
	Nuddea	Dum-Dum	ditto	ditto	ditto	ditto		
		Kishnachur	ditto	ditto	ditto	ditto		
		Bongong	ditto	ditto	ditto	ditto		
		Meherpore	ditto	ditto	ditto	ditto		
		Chooandungah	ditto	ditto	ditto	ditto		
		Kooshita	ditto	ditto	ditto	ditto		
		Ranghat	ditto	ditto	ditto	ditto		
	Jessore	Jessore	ditto	ditto	ditto	ditto		
		Nural	ditto	ditto	ditto	ditto		
		Khoolneah	ditto	ditto	ditto	ditto		
		Jemidah	ditto	ditto	ditto	ditto		
		Bagirhaut	ditto	ditto	ditto	ditto		
		Magoorah	ditto	ditto	ditto	ditto		
		Moorshedabad	Berhampore	ditto	0.10	0.10	ditto	
	Jamoonkandi		Not rec.	Not rec.	Not rec.	Not rec.		
	City Moorshedabad		Nil.	0.07	0.07	11th Jan.		
	Jungipore		ditto	0.43	0.43	ditto		
	Azimungoo		ditto	0.05	0.05	ditto		
	Dinagpore		ditto	0.59	0.59	ditto		
	Maldah		ditto	0.27	0.27	ditto		
Rajshahiye	Maldah		ditto	0.23	0.23	ditto		
	Beaulah		ditto	0.28	0.28	ditto		
	Nattore		ditto	0.05	0.05	ditto		
Rungpore	Rungpore		ditto	Nil.	Nil.	ditto		
	Bhowanungoo		ditto	0.20	0.20	ditto		
	Titalya	ditto	Nil.	1.10	ditto			
Bograh	Bograh	ditto	ditto	ditto	ditto			
	Pubna	ditto	Not rec.	ditto	4th Jan.			
COOCH BEHAR.	Darjeeling	Darjeeling	{ Telegraph Office	Not rec.	ditto	ditto		
			{ Hospital	Nil.	Nil.	Nil.	11th Jan.	
		Runghee	Not rec.	Not rec.	Not rec.	Not rec.		
	Julpigoree	Julpigoree	ditto	0.05	0.05	11th Jan.		
		Fallaotta	ditto	0.14	0.14	ditto		
	Cooch Behar Tributary State	Boda	ditto	Nil.	Nil.	ditto		
		Cooch Behar	ditto	ditto	ditto	ditto		
	Bhutan Dooars	Buxa	ditto	0.44	0.44	ditto		
	EASTERN DISTRICTS.							
	DACCA.	Dacca	Dacca	{ Telegraph Office	ditto	Nil.	Nil.	ditto
			{ Hospital	ditto	ditto	ditto	ditto	
Furroodpore		Moonshegunge	ditto	ditto	ditto	ditto		
		Manickgunge	ditto	ditto	ditto	ditto		
		Furroodpore	ditto	ditto	ditto	ditto		
Backergunge		Goalundo	ditto	ditto	ditto	ditto		
		Burrisaul	ditto	ditto	ditto	ditto		
		Perozepore	ditto	ditto	ditto	ditto		
		Madariopore	ditto	ditto	ditto	ditto		
Mymensing		Patoakhally	ditto	ditto	ditto	ditto		
	Dowlat Khan	ditto	ditto	ditto	ditto			
	Mymensing	ditto	0.10	0.10	ditto			
Sylhet	Jamulpore	ditto	Nil.	Nil.	ditto			
	Atteah	ditto	0.04	0.04	ditto			
Cachar	Kishoregunge	ditto	Nil.	Nil.	ditto			
	Sylhet	Not rec.	0.08	0.08	ditto			
	Cachar	ditto	1.00	1.00	ditto			
CHITTAGONG.	Chittagong	Cachar	Not rec.	Not rec.	Not rec.	Not rec.		
		Hylakandy	Nil.	0.36	0.36	ditto		
		Koyah	Nil.	0.36	0.36	ditto		
	Chittagong Hill Tracts	Chittagong	{ Telegraph Office	ditto	2.00	2.00	ditto	
			{ Jail	ditto	Not rec.	Nil.	4th Jan.	
		Cox's Bazar	ditto	ditto	ditto	ditto		
		Rungenmuttee Hill	ditto	ditto	ditto	ditto		
Tipperah	Nonahally	ditto	Nil.	Nil.	11th Jan.			
	Comillah	ditto	ditto	ditto	ditto			
Hill Tipperah	Brahmanbariah	ditto	ditto	ditto	ditto			
	Hill Tipperah	ditto	ditto	ditto	ditto			

Not received 1st to 4th Jan.

DIVISION.	DISTRICT.	STATION.	Rain from 1st to 4th Jan. 1873.	Rain from 5th to 11th Jan. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.	
					Inches.	Up to date.		
	BEHAR.		Inches.	Inches.	Inches.	1873.		
PATNA.	Patna	Patna ...	Nil.	0.17	0.17	1st Jan.		
		Behar ...	ditto	0.39	0.39	ditto		
		Barh ...	ditto	Nil.	Nil.	ditto		
	Gya	Dinapore... { Jail ...	ditto	0.21	0.21	ditto		
		... { Cantonment ...	ditto	Nil.	Nil.	ditto		
		Gya ...	ditto	0.06	0.06	ditto		
	Shahabad	Nowadah ...	ditto	0.10	0.10	ditto		
		Aurangabad ...	ditto	Nil.	Nil.	ditto		
		Jehanabad ...	ditto	0.10	0.10	ditto	From 6th January.	
	Tirhoot	Arrah ...	ditto	Nil.	0.30	0.30	ditto	
		Sasseram ...	ditto	Nil.	Nil.	ditto		
		Buxar ...	ditto	0.15	0.15	ditto		
	Sarun	Bhuboah ...	ditto	Not rec.	Nil.	4th Jan.		
		Mozufferpore ...	ditto	0.30	0.30	11th Jan.	Not received 1st to 4th Jan.	
		Durbangah ...	Not rec.	0.02	0.02	ditto		
Chumparun	Hajipore ...	ditto	0.15	0.15	ditto			
	Mudhubani ...	ditto	0.18	0.18	ditto			
	Sectamaree ...	ditto	0.20	0.20	ditto			
Monghyr	Tajpore ...	Not rec.	0.25	0.25	ditto	Ditto ditto.		
	Chuprah ...	Nil.	0.13	0.13	ditto			
	Sewan ...	Not rec.	0.15	0.15	ditto	Ditto ditto.		
Bhaugulpore	Motechhari ...	Nil.	0.10	0.10	ditto			
	Bottiah ...	ditto	Not rec.	Nil.	4th Jan.			
	Monghyr ...	ditto	0.21	0.21	11th Jan.			
Purneah	Regooorai ...	Not rec.	Not rec.	Not rec.	11th Jan.			
	Jaunooie ...	Nil.	0.26	0.26	ditto			
	Bhaugulpore ...	ditto	0.23	0.23	ditto			
Sonthal Pergunnahs	Sooopol ...	ditto	Nil.	Nil.	ditto			
	Mudheypoarah ...	ditto	ditto	ditto	ditto			
	Banka ...	ditto	ditto	ditto	ditto			
Orissa	Purneah ...	ditto	Not rec.	ditto	ditto			
	Kighnengungo ...	ditto	Nil.	ditto	4th Jan.			
	Arrarah ...	ditto	0.22	0.22	11th Jan.			
Cuttack	Deoghur ...	ditto	Not rec.	Nil.	4th Jan.			
	Jamtara ...	ditto	Nil.	ditto	11th Jan.			
	Rajmelial ...	Not rec.	ditto	ditto	ditto	Ditto ditto.		
Cuttack	Pakour ...	Nil.	0.00	0.00	ditto			
	Nyn-Doomka ...	ditto	0.11	0.11	ditto			
	Godda ...	ditto	Nil.	Nil.	ditto			
Orissa	Cuttack { Telegraph Office ...	Nil.	Nil.	Nil.	ditto			
	... { Hospital ...	ditto	ditto	ditto	ditto			
	Jajipore ...	ditto	ditto	ditto	ditto			
Pooree	Kendrapara ...	ditto	ditto	ditto	ditto			
	Juculsingpore ...	ditto	ditto	ditto	ditto			
	False Point ...	ditto	Not rec.	ditto	4th Jan.			
Balasore	Pooree ...	ditto	Nil.	ditto	11th Jan.			
	Khoordah ...	ditto	ditto	ditto	ditto			
	Balasore ...	Not rec.	ditto	ditto	ditto	Ditto ditto.		
Cuttack	Bhuddruck ...	ditto	ditto	ditto	ditto	Ditto ditto.		
	Tributary ...	ditto	Not rec.	Not rec.	Not rec.			
	Mohals ...	Sambalpore ...	ditto	Not rec.	Not rec.			
CHOTA NAGPORE--								
SOUTH-WESTERN FRONTIER AGENCY.								
Hazarcebaugh	Hazarcebaugh { Jail ...	Nil.	Nil.	Nil.	11th Jan.			
	... { Dispensary ...	ditto	ditto	ditto	ditto			
	Pachumba ...	ditto	ditto	ditto	ditto			
Singbhoom	Ranchoe ...	ditto	ditto	ditto	ditto			
	Palamow ...	ditto	ditto	ditto	ditto			
	Ghyebussa ...	ditto	ditto	ditto	ditto			
Maumbhoom	Purulia ...	ditto	ditto	ditto	ditto			
	Gobindpore ...	ditto	ditto	ditto	ditto			
ASSAM & ADJACENT HILLS.								
Goalparah	Goalparah ...	ditto	Not rec.	ditto	4th Jan.			
	Dhoobres ...	ditto	ditto	ditto	ditto			
	Gowhaty ...	ditto	0.11	0.11	11th Jan.			
Kamroop	Burpetchah ...	ditto	0.15	0.15	ditto			
	Tezpur ...	ditto	Not rec.	Nil.	4th Jan.			
	Mangledye ...	ditto	ditto	ditto	ditto			
Nowgong	Nowgong ...	ditto	Nil.	ditto	11th Jan.			
	Sechawangor ...	ditto	Not rec.	ditto	4th Jan.			
	Golaghat ...	ditto	ditto	ditto	ditto			
Soobaugor	Jorahut ...	ditto	ditto	ditto	ditto			
	Nazeerah ...	Not rec.	ditto	ditto	ditto			
	Debrooghur ...	Nil.	ditto	Nil.	4th Jan.			
Luckimpore	North Luckimpore...	ditto	ditto	ditto	ditto			
	Suddya ...	ditto	ditto	ditto	ditto			
	Samooogodting ...	Not rec.	ditto	ditto	ditto			
Naga Hills	Shillong ...	Nil.	ditto	Nil.	4th Jan.			
	Shillong ...	ditto	ditto	ditto	ditto			
	Jnowai ...	ditto	ditto	ditto	ditto			
Garohills	Cherrapoonjee ...	Not rec.	ditto	ditto	ditto			
	Tura ...	Nil.	0.43	0.43	11th Jan.			
	Benares ...	ditto	Nil.	Nil.	ditto			
	Akya ...	ditto	ditto	ditto	ditto			

CALCUTTA,
The 18th January 1873.

H. F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 12th to 18th January 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. = 100	WIND.		Rain.	Clouds.	Weather initials.
					Dry.	Wet.		Direction.	Velocity.			
CALCUTTA.	Jan.											
	12th	10	30.007	30.088	64.4	55.9	55	NE	...	...	...	b
	12th	16	29.981	29.953	69.3	56.7	40	WNW	...	...	...	b
	13th	10	30.068	30.087	65.5	57.4	58	NNE	...	...	...	b
	13th	16	29.924	29.913	71.0	58.5	42	W	...	...	...	b
	14th	10	30.061	30.085	67.8	61.7	63	W	...	...	...	b
	14th	16	29.920	29.938	76.4	61.2	48	WSW	...	...	...	b
	15th	10	29.979	29.998	70.0	62.2	61	W by N	...	...	...	b
	15th	16	29.865	29.883	78.7	65.2	44	W by N	...	...	...	b
	16th	10	30.012	30.031	71.0	63.8	65	ENE	...	...	...	b
	16th	16	29.860	29.874	76.5	61.5	48	ENE	...	...	...	b
	17th	10	29.981	30.000	70.4	61.6	57	ENE	...	...	...	b
17th	16	29.851	29.869	77.4	64.7	46	WNW	...	...	...	b	
18th	10	30.039	30.058	68.5	66.0	80	S	...	...	C	h	
18th	16	29.921	29.939	79.0	72.2	60	W	...	...	K	h	
SAGOR ISLAND.	12th	10	30.057	30.068	68	61	64	NE	2.2	...	...	b, m
	12th	16	29.936	29.942	73	66	67	SW	1.5	...	...	h, m
	13th	10	30.075	30.081	69	64	74	E	0.2	...	...	b, m
	13th	16	29.938	29.914	74	69	76	SW	4.1	...	...	calm
	14th	10	30.073	30.070	72	66	71	SSW	3.5	...	C	b, m
	14th	16	29.941	29.952	78	68	57	WSW	6.5	...	C	t
	15th	10	30.018	30.024	76	70	72	W	4.2	...	...	h
	15th	16	29.888	29.894	78	72	73	S	5.9	...	...	f
	16th	10	30.008	30.009	68	67	64	NNW	1.7	...	...	h, m
	16th	16	29.881	29.887	77	66	53	NNW	6.0	...	C	t, m
	17th	10	29.973	29.979	73	65	62	N	6.7	...	...	h, m
	17th	16	29.859	29.865	79	69	58	SSW	5.6	...	...	t, m
18th	10	30.033	30.039	70	73	86	SSW	2.5	...	K	b, m	
18th	16	29.924	29.930	80	75	78	S	5.3	...	K	b	
CHITTAGONG.	12th	10	29.900	30.056	63	55	56	NNE	4.8	...	...	b, m
	12th	16	29.829	29.924	68	55	38	SW	6.1	...	...	b, m
	13th	10	29.958	30.054	61	55	52	NNE	4.4	...	...	b, m
	13th	16	29.858	29.951	69	58	47	W	6.0	...	...	b, m
	14th	10	29.998	30.094	64	58	67	NNE	3.5	...	...	b, m
	14th	16	29.894	29.980	70	59	44	W	5.7	...	...	b, m
	15th	10	29.940	30.035	68	60	60	N	3.5	...	...	b, m
	15th	16	29.868	29.962	75	66	59	SSW	7.1	...	K, KS	b
	16th	10	29.914	30.009	70	68	89	ESE	4.9	...	...	b, m
	16th	16	29.810	29.904	76	71	77	S	11.2	...	...	b, m
	17th	10	29.898	29.992	75	70	76	SE	4.6	0.10	...	l, m
	17th	16	29.798	29.892	76	74	90	SW	7.3	...	...	b
18th	10	29.981	30.075	73	69	80	N	3.0	...	...	b, m	
18th	16	29.888	29.982	77	69	64	SW	6.4	...	...	b	
MADRAS.	11th	10	30.013	30.043	77	70	68	NE by N	5	...	...	b
	11th	16	29.906	29.926	82	72	59	NNE	10	...	...	c
	12th	10	30.061	30.081	78	69	61	NNE	10	...	...	b
	12th	16	29.920	29.950	81	70	55	NNE	11	...	...	c
	13th	10	30.073	30.103	80	69	54	NNW	9	...	...	c
	13th	16	29.952	29.982	80	69	54	NE by E	8	...	...	c
	14th	10	30.090	30.120	79	69	58	NE by E	4	...	...	bc
	14th	16	29.973	30.003	81	70	55	NE by E	8	...	...	bc
	15th	10	30.093	30.123	77	68	60	NE by N	3	...	...	b
	15th	16	29.971	30.001	81	69	51	SE by E	5	...	...	b
	16th	10	30.078	30.108	79	68	54	ESE	3	...	...	b
	16th	16	29.929	29.959	78	68	57	SE by S	7	...	...	b
17th	10	30.001	30.081	78	69	61	SE by S	7	...	...	b	
17th	16	29.875	29.905	79	71	65	SE	8	...	...	b	
CUTTACK.	11th	10	29.975	30.059	71	54	25	NE	1.4	...	...	b
	11th	16	29.847	29.931	75	58	29	N	1.8	...	...	b
	12th	10	30.003	30.087	69	58	47	WNW	0.8	...	...	b
	12th	16	29.849	29.932	77	67	57	WNW	3.2	...	...	b
	13th	10	30.010	30.094	71	60	40	NW	0.6	...	...	b
	13th	16	29.807	29.890	80	62	30	NNE	2.4	...	...	b
	14th	10	30.000	30.084	71	61	53	N	0.8	...	...	b
	14th	16	29.870	29.958	84	62	22	W	3.7	...	C	b
	15th	10	29.949	30.026	73	62	50	WSW	3.2	...	...	b
	15th	16	29.810	29.901	85	67	34	WNW	3.6	...	...	b
	16th	10	29.930	30.023	74	63	51	NNE	1.3	...	C	b
	16th	16	29.789	29.871	83	69	48	NNE	2.5	...	...	b
17th	10	29.909	29.993	74	68	63	NNW	0.7	...	...	b	
17th	16	29.776	29.858	84	68	40	NNW	2.4	...	...	b	
AKYAB.	12th	10	29.996	30.018	72	58	37	NW	...	...	...	b
	12th	16	29.896	29.918	71	56	33	NW	8.3	...	...	b
	13th	10	30.024	30.046	68	59	55	E	1.6	...	...	b
	13th	16	29.900	29.922	72	61	49	W	6.1	...	...	b
	14th	10	30.072	30.094	68	61	64	ENE	0.8	...	...	b
	14th	16	29.953	29.980	73	61	46	W	6.3	...	...	b
	15th	10	30.036	30.058	80	63	70	ENE	1.0	...	...	b
	15th	16	29.842	29.964	75	68	59	W	3.6	...	...	b
	16th	10	30.031	30.053	72	61	62	E	1.0	...	...	b
	16th	16	29.920	29.942	77	68	60	SW	2.3	...	...	b
	17th	10	29.878	29.900	74	70	81	SE	0.5	...	...	b
	17th	16	29.890	29.912	72	70	80	E	1.5	0.60	...	h
18th	10	30.051	30.073	71	68	85	SE	0.6	...	...	m	
18th	16	29.947	29.969	77	67	56	W	3.6	...	...	b	

* Velocity of wind in miles per hour.

Abstract of Observations as received in the Meteorological Reporter's Office, Calcutta, DURING THE MONTH OF OCTOBER 1872. N.B.—The Barometric data are reduced for height above sea-level.

Height above sea-level.	BAROMETER.				TEMPERATURE OF AIR.										HUMIDITY.				RAINFALL.		
	MEAN OF				Mean of range.	Mean of min.	Mean of max.	RADIATION.			MEAN OF			Highest Max.	Lowest Min.	MEAN OF				In inches.	No. of days.
	4 hours.	10 hours.	16 hours.	24 hours.				Mean.	Solar.	GROSS NOCTURNAL.		10 hours.	16 hours.			24 hours.	4 hours.	10 hours.	16 hours.		
					Max.	Min.	Day.			Day.	Day.										
100	29.765	29.806	29.725	...	84.3	8.4	75.9	79.3	...	82.7	82.7	...	28-31st	87.0	13.0	...	81	78	...	11.03	27
27	29.808	29.863	29.753	...	83.2	2.8	80.4	80.6	...	82.9	81.7	...	1st	87.2	9.6	...	77	68	...	1.48	6
31	29.781	29.743	29.830	29.736	87.9	13	74.9	79.3	...	81.3	81.8	...	22nd	9.3	19.7	...	85	82	...	16.60	16
21	29.824	29.870	29.778	29.858	...	...	...	...	...	84.0	84.2	...	...	...	...	...	81	85	...	15.85	10
187	29.818	29.800	29.843	29.770	...	...	...	...	...	81.6	81.6	...	...	...	...	...	81	74	...	10.70	11
60	29.763	29.740	29.810	29.778	88.8	16.0	73.8	80.2	...	83.4	83.4	...	1st	95.0	27.0	...	81	81	...	17.58	16
6	29.829	29.803	29.878	29.783	85.2	10.5	74.7	80.4	...	83.5	83.5	...	6th	88.6	18.7	...	88	84	...	...	10
80	29.764	29.741	29.815	29.792	87.6	13.5	74.1	80.2	...	82.5	82.5	...	7th	92.0	21.1	...	84	84	...	...	10
18-11	29.827	29.788	29.818	29.852	86.8	9.7	77.1	83.9	...	84.7	84.7	...	6th	91.3	19.8	...	82	82	...	8.93	11
20	29.824	29.768	29.873	29.768	84.3	18.5	71.8	81.6	...	84.8	84.8	...	3rd	92.8	21.8	...	83	85	...	6.68	14
35	29.810	29.789	29.866	29.783	87.4	12.4	75.4	81.1	...	84.6	84.6	...	4th	92.3	20.9	...	84	84	...	4.99	11
89	29.761	29.733	29.827	29.778	87.8	14.1	73.2	79.5	...	80.5	80.5	...	22nd	92.0	22.0	...	86	83	...	1.39	13
64	29.783	29.773	29.837	29.780	89.2	14.6	74.3	81.2	...	84.7	84.7	...	7th	95.5	28.0	...	89	83	...	...	9
338	29.467	29.447	29.531	29.411	88.1	18.0	70.4	79.9	...	83.0	83.0	...	6-7th	93.7	31.7	...	83	83	...	1.73	2
179	29.667	29.644	29.718	29.617	87.1	15.6	71.3	79.8	...	84.3	84.3	...	18th	91.7	24.6	...	81	81	...	1.53	2
160.4	29.689	29.670	29.746	29.694	87.1	15.6	71.3	79.8	...	84.3	84.3	...	18th	91.7	24.6	...	81	81	...	1.53	2
6.845	29.417	29.417	29.434	29.397	85.9	14.7	73.8	80.1	...	85.3	85.3	...	6th	93.0	27.8	...	81	81	...	3.63	5
386	29.514	29.503	29.579	29.472	84.0	15.0	69.0	76.4	...	81.8	81.8	...	29th	70.0	25.0	...	80	86	...	4.61	9
4.792	29.227	29.234	29.304	29.245	70.9	15.1	55.8	61.3	...	67.0	67.0	...	5th	90.8	28.6	...	81	82	...	4.32	9
262.74	29.616	29.587	29.684	29.567	90.8	34.0	66.8	75.6	...	85.6	85.6	...	21st	96.0	42.0	...	87	84	...	Nil	...
879.7	29.475	29.436	29.525	29.447	89.5	29.5	60.0	74.8	...	80.4	80.4	...	17th	92.2	41.6	...	89	89	...	Nil	...

CALCUTTA—October 1872.

Mean Barometric pressure of 16 years	29.834	Mean temperature of 16 years	81.4	Mean humidity of 16 years	78	Mean rainfall of 16 years	5.43
ditto ditto in 1872	29.827	ditto ditto in 1872	81.6	ditto ditto in 1872	82	Actual fall in 1872	8.93
Excess in 1872	-.007	Excess in 1872	-.2	Excess in 1872	4	Excess in 1872	3.50

CALCUTTA, 14th January 1873. HENRY F. BLANKFORD, Meteorological Reporter to the Govt. of Bengal.

Mean pressures and temperatures of the preceding table reduced to sea-level, with Anemometric results and observations of sky serenity.

STATIONS.	Mean barometric pressures reduced to sea-level.	Mean temperature reduced to sea-level.	WIND.									Percentage and Resultant.	Mean velocity daily.	Mean serenity.
			North.	North-East.	East.	South-East.	South.	South-West.	West.	North-West.	Calm.			
Port Blair	29.867	79.0	...	8	2	24	...	20	...	8	...	39 S 14 E	Miles.	4.19
Madras	29.838	81.7	10	5	11	4	2	5	11	13	...	20 N 24 W	170.1	...
Vizagapatam	29.813	81.9	3	22	41	13	8	7	22	5	...	31 E	56.8	4.17
Akyab	29.846	79.8	3	10	20	13	15	10	17	5	...	21 S 26 E	81.2	5.39
False Point	29.837	83.1	19	37	10	11	3	10	1	7	26	36 N 44 E	...	...
Cuttack	29.846	80.4	24	41	10	7	2	6	13	6	15	41 N 25 E	69.5	6.28
Sauzer Island	29.835	80.4	24	27	19	7	19	8	10	10	...	23 N 45 E	110.7	4.93
Chittagong	29.867	80.4	26	7	15	8	3	23	11	15	16	17 N 36 W	72.0	5.42
Calcutta	29.846	81.6	14	26	28	13	18	9	6	10	...	30 N 81 E	66.8	...
Jessore	29.845	80.8	10	12	7	19	29	9	4	6	28	24 S 29 E	59.1	5.90
Dacca	29.847	81.1	21	15	15	10	18	9	9	6	13	12 N 71 E	58.6	5.04
Oachar	29.853	79.7	6	13	26	20	10	11	16	8	14	22 S 61 E	62.5	4.02
Berhampore	29.850	81.4	13	13	8	8	6	9	9	13	45	11 N 8 W	38.3	5.06
Gya	29.836	80.9	7	13	8	14	8	1	13	15	45	7 N 19 E	30.3	7.39
Patna	29.851	80.2	15	21	13	4	6	11	7	7	32	23 N 35 E	21.3	6.24
Monghyr	29.853	80.5	7	20	16	1	1	16	19	3	40	3 N 27 W	5.9	4.91
Darjeeling	29.900	76.9	1	3	23	17	10	9	42	19	...	22 N 64 W	...	4.61
Gowalparah	29.902	77.5	2	21	72	9	4	7	9	...	...	64 E	...	4.40
Shillong	29.848	74.9	8	2	9	...	7	3	9	14	52	14 N 46 W	47.1	3.09
Benares	29.872	79.3	5	1	5	6	5	15	21	13	28	32 S 80 W	43.6	8.48
Itoorkee	29.873	77.3	...	5	2	17	...	9	2	1	88	13 N 32 E	33.7	9.77

NOTE.

Barometric Pressure.—The pressures in column 2 of the above table for all stations below 500 feet are reduced from those given in column 3 of the table on the previous page by adding the weight of a column of air of the corresponding temperatures given in column 17. For stations of above 500 feet elevation, the reduction is made by Dippe's tables as given in Guyot's "Meteorological and Physical Tables." The temperatures at the sea-level are taken from column 3 of the above table.

Temperature.—The temperatures in column 3 are reduced from those in column 17 on the preceding page by adding 1° Fahr. for every 350 feet.

Wind Resultant.—The resultant wind direction and the comparative predominance are calculated from the whole number of wind observations recorded during the month. The relative predominance in the direction of the resultant is given as a percentage of the whole number of observations. The direction is computed in the usual way by Lambert's formula.

Serenity.—This column gives the average proportion of unclouded sky; a cloudless sky being indicated by 10 and one completely overcast by 0.

The above being all comparable, afford the data for constructing a meteorological chart for the month. The isobars and isotherms may be drawn by the use of the resultant wind directions, which shall show the isobaric and isothermal lines and the prevalence of the wind. To these may be added the rainfall from the previous tables.

CALCUTTA,
The 18th January 1873.

HENRY F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 8th to 14th January 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.		
Jan.	8th	29.932	81.0	68.5	127.0	72.0	68.8	65.8	0.80	S by W, & N N W	lb 71.3	...	...	Chiefly clear. Slightly foggy from 3 to 6 A.M.
	9th	.988	71.4	57.5	129.0	63.3	55.4	48.3	.60	N & N W	...	183.5	...	Clear. Slightly foggy at 7 and 8 P.M.
	10th	.952	71.5	54.8	128.0	62.2	54.8	48.1	.62	SE, ENE & N W	...	61.9	...	Clear. Slightly foggy 7 to 11 P.M.
	11th	.980	68.5	54.7	124.7	61.5	53.8	48.0	.61	NNE & N N W	...	94.4	...	Clear. Slightly foggy from midnight to 3 A.M.
	12th	.996	71.5	53.0	122.0	61.2	44.7	48.8	.66	NE & N W	...	45.0	...	Clear. Slightly foggy from 7 to 11 P.M.
	13th	.994	72.5	53.5	122.2	62.1	56.1	50.7	.68	NN E & W by N	...	33.0	○	Clear. Slightly foggy from midnight to 3, at 6, 7 and 11 A.M., and from 7 to 9 P.M.
		.976	78.5	55.0	131.2	65.7	59.8	55.1	.70	W by N, W & variable.	...	80.0	...	Clear. Slightly foggy from 5 to 8 A.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	28.0
The max. temperature during the past seven days	...	81.0
The max. temperature during the corresponding period of the past year	...	78.6
The mean humidity during the past seven days	...	0.67
The mean humidity during the corresponding period of the past year	...	0.69
		Inches.
The total fall of rain from 8th to 14th	... by lower rain gauge	Nil.
	... by anemometer gauge	Nil.
Ditto ditto ditto	average of nineteen previous years	0.09
Ditto ditto between the 1st January and the 14th January		Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	0.09

GOVERNMENT SER.,
In charge of the Observatory.

The 20th January 1873.

Public Works Department, — Bengal.
GENERAL ESTABLISHMENT. — No. 436. — The 9th December 1872.

Statement showing heights over mean sea level and low water on Rivers Ganges and Bhagiratty during the month of November 1872.

DATE.	RIVER GANGES.									
	Banar.	Dinapore.	Monghyr.	Sahibganj.	Ranpore Benuea.	Goalundo.	Berhampore.	Kishnaghur.		
files.	90.	177.	257.	331.	471.	531.	70.			
Distances.	Height over mean sea level.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over low water.	Height over mean sea level.
	1st	175 48	175 48	110 51	Not received.	Not received.	21 69	46 98	12 3	21 04
2nd	173 23	173 23	110 43	8 7	110 43	21 36	46 31	11 8	20 45	
3rd	175 07	175 07	110 35	8 6	110 35	21 9	45 64	11 1	19 87	
4th	174 90	174 90	110 18	8 4	110 18	21 02	45 06	10 5	19 20	
5th	174 82	174 82	109 63	8 1	109 63	20 77	44 54	9 8	18 45	
6th	174 5	174 5	109 85	8 0	109 85	20 44	44 14	9 0	17 79	
7th	171 48	171 48	109 69	7 9	109 69	20 10	43 72	8 4	17 12	
8th	174 49	174 49	109 44	7 7	109 44	19 83	43 40	7 3	16 53	
9th	174 32	174 32	109 18	7 4	109 18	19 44	43 06	7 4	16 12	
10th	174 15	174 15	109 01	7 2	109 01	19 10	42 89	7 0	15 79	
11th	173 98	173 98	108 85	7 0	108 85	18 86	42 56	6 9	15 53	
12th	173 82	173 82	108 75	6 11	108 75	18 14	42 40	6 6	15 29	
13th	173 73	173 73	108 69	6 9	108 69	18 11	42 14	6 5	15 20	
14th	173 57	173 57	108 35	6 6	108 35	18 11	41 98	6 2	14 96	
15th	173 48	173 48	108 35	6 6	108 35	17 94	41 5	6 1	14 87	
16th	173 32	173 32	108 18	6 4	108 18	17 69	41 5	5 10	14 62	
17th	173 24	173 24	108 11	6 3	108 11	17 41	41 31	5 9	14 54	
18th	173 16	173 16	107 83	6 1	107 83	17 19	41 14	5 7	14 37	
19th	173 07	173 07	107 85	6 0	107 85	16 91	40 90	5 4	14 12	
20th	172 94	172 94	107 76	5 11	107 76	16 77	40 73	5 1	13 87	
1st	172 98	172 98	107 65	5 10	107 65	16 52	40 55	5 1	13 87	
2nd	172 80	172 80	107 51	5 8	107 51	16 27	40 48	5 0	13 79	
3rd	172 80	172 80	107 43	5 7	107 43	16 02	40 31	4 11	13 70	
4th	172 80	172 80	107 35	5 6	107 35	15 86	40 14	4 10	13 62	
5th	172 2	172 2	107 8	5 4	107 8	15 61	40 06	4 4	13 46	
6th	172 74	172 74	107 10	5 3	107 10	15 44	39 90	4 7	13 37	
7th	172 74	172 74	107 01	5 2	107 01	15 36	39 73	4 6	13 29	
8th	172 65	172 65	107 01	5 2	107 01	15 9	39 56	4 5	13 20	
9th	172 58	172 58	106 93	5 1	106 93	15 10	39 40	4 3	12 96	
10th	172 58	172 58	106 85	5 0	106 85	15 10	39 31	4 2	12 96	

H. LEONARD, C.E.
Offg. Secy to the Commr of District of Dacca

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

SOUTH-WESTERN CIRCLE.

Statement showing the amount of Traffic and Tolls on the Hidgelee Tidal Canal for the month of November 1872.
LENGTH OF CANAL OPEN - 26 MILES.

Num-ber of boats.	Nature of cargo.	APPROXIMATE TONNAGE.		Ton mile- age.	Tollage.	Num- ber of boats or rafts.	Nature of cur- o.	APPROXIMATE TONNAGE.		Ton mile- age.	Tollage.	Num- ber of boats.	Nature of traffic.	Weight of cargo traffic Mds.	Value of cargo traffic Rs.	Total, ex- clusive of tonnage of empty boats.	Tollage.	Rs. A. P.
		Weight of cargo, Mds.	Value of cargo, Rs.					Weight of cargo, Mds.	Value of cargo, Rs.									
13	Pottery	No. 840	Rs. 176	1,100	...	1	Gates Empty	49	...	...	...	...	Local	...	...	...	...	...
13	Timber	443	1,870	955	...	1	...	...	150	...	...	...	...	20,025	58,616	1,864	48,178	486 12 3
2	Panchar	2,500	...	...	...	1	...	...	...	...	...	...	...	40	...	5	1:9	2 9 6
1	A kind of swing	1	30	80	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Cocunut	1,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Passengers	64	...	885	...	...	...	...	...	...	...	...	...	...	...	...	...	...
632	Empty boats	...	...	21,270	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Empty boats	...	...	11,678	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Straw	373	812	925	...	...	...	...	...	...	...	...	...	...	...	...	...	...
4	Jagary	315	1,590	503	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Firewood	1,327	370	2,680	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Spin	153	1,000	175	...	...	...	...	...	...	...	...	...	...	...	...	...	...
10	Rice	173	307	400	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	Grouting	73	113	1,455	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	Sand	255	147	6,030	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	Tobacco	1,675	9,720	3,945	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Possir sugar	75	10	125	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Tread	12	40	50	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	Salt	3,005	12,300	6,150	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	Lime	270	235	300	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	Vegetables	55	151	305	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Suts	1	125	100	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Distal wood	830	615	646	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Coal	125	42	325	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Cotton	470	8,500	1,050	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	Betel	120	155	345	...	...	...	...	...	...	...	...	...	...	...	...	...	...
5	Oil cake	140	140	805	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Spices	150	2,000	375	...	...	...	...	...	...	...	...	...	...	...	...	...	...
21	Iron	1,028	5,200	1,820	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3	Miscellaneous	214	1,115	500	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Bamboos	72	8	110	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1	Clothes	6	300	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...
600		20,025	58,616	52,215	1,864	48,173	400 12 3	2	40	150	5	189	2 9 6	26,065	58,616	1,860	48,615	489 5 9

ABSTRACT.

STORES AND MATERIALS FOR IRRIGATION WORKS.

LOCAL TRAFFIC.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Brahmince Division High Level Canal for the month of November 1873.

LENGTH OF CANAL OPEN—37 MILES.

LOCAL TRAFFIC.										STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.				
Number of boats.	Nature of cargo.	APPROXIMATE		TONNAGE.		Ton mileage.	Tollage.	No. of boats or rafts.	Nature of cargo.	APPROXIMATE		TONNAGE.		Ton mileage.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Ton mileage.	Tollage.			
		Mds.	Rs.	Mds.	Maunds.					Mds.	Maunds.	Mds.	Rs.									Mds.	Rs.	
8	Salt	400	2,450	1,030	86	125	15	1	2	11	11	1	2	61	14	0	...	...	...	...	...	...	Rs. A. P.
7	Empty	...	...	311	12	258	4	14	6	1	1	1	2	12	6	0	...	...	...	...	...	...	...
1	Firewood	5	2	11	1	13	0	2	3	5	1	1	2	23	6	0	...	...	...	...	...	...	...
1	Rice	10	15	25	1	30	0	5	5	1	1	1	7	0	0	...	...	...	...	...	...	...	...
1	Foola, &c.	20	100	37	1	41	0	7	0	1	1	2	4	3	0	...	...	...	...	...	...	...	...
1	Jaggery	100	300	180	5	65	1	4	0	1	1	5	8	4	0	...	...	...	...	...	...	...	...
1	Provisions, &c.	10	50	22	1	27	0	4	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Passengers	10	10	0
29		945	3,117	1,586	67	1,716	33	0	10	19	3,750	12,480	445	9,036	108	14	0	48	4,577	503	10,762	141	14	10

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Kendraparah Canal for the month of November 1872.

DISTANCE FROM CUTTACK TO TERMINAL LOCK AT TIDE WATER—42 MILES.

LOCAL TRAFFIC.				TRAFFIC BETWEEN CUTTACK AND SEA-BOARD.				STORES AND MATERIALS FOR IRRIGATION WORKS.				ABSTRACT.													
Nature of cargo.	Approximate value	TONNAGE.		Number of boats.	Nature of cargo.	Approximate value	TONNAGE.		Number of boats.	Nature of cargo.	Approximate value	TONNAGE.		Number of boats.	Nature of traffic.	Value of traffic.	Tonnage.	Ton mileage.	Rs. A. P.						
		Mands.	Tons.				Mands.	Tons.				Mands.	Tons.												
3 Gingelly	1,315	268	...	4	4 Salt	3,455	697	...	10	2 0	1	Passengers	...	40	...	...	...	0	2 0	62		
10 Paddy	1,315	246	...	23	Passengers	...	4,003	...	71	14 0	13	Stones	...	20	8,507	...	...	84	0 0	186			
10 Jagerry	1,315	2,475	...	14	like	4,298	4,297	...	61	14 0	2	Course line	...	617	...	...	...	4	12 0	0		
3 Cotton	13,140	672	...	4	1 Ginnet	2,520	120	...	1	14 0	14	Empty	...	3,202	...	...	...	15	0 0	30		
2 Hides	70,400	764	...	10	64 Empty	9,206	9,206	...	142	15 0	...	...	...	...	...	...	...	...	...	...
1 Turmeric	940	188	...	0	3 Hides	10,740	1,074	...	15	12 0	...	...	...	...	...	...	...	...	...	...
1 Gram	815	815	...	0	5 Jagerry	2,565	613	...	6	12 0	...	...	...	...	...	...	...	...	...	...
62 Empty	...	2,657	...	0	2 Turmeric	1,394	278	...	3	12 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	2 Oil	6,900	300	...	4	2 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	2 Ca-tor seeds	565	115	...	1	2 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	6 Hides	378,800	3,788	...	55	2 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	1 Timber	272	858	...	13	8 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	25 Paddy	2,916	5,837	...	79	8 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	13 Spices	349,200	3,492	...	50	10 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	4 salt fish	4,830	483	...	7	2 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	1 Khoree	810	162	...	2	4 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	6 Gram	1,224	1,224	...	17	8 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	1 Painter Stores	4,350	435	...	6	6 0	...	...	...	...	...	...	...	...	...	...
...	...	...	...	0	9 Clothes	317,400	3,174	...	38	11 0	...	...	...	...	...	...	...	...	...	...
62	373,47	10,278	367	7,599	55	10	1,471	61,782	590	1	0	30	...	...	...	...	...	...	...	...
														438	12,508	104	4	0	278	12,10,251	3,278	81,886	749	15	0

N.B.—The tonnage shown is that of the boats and not of the cargo.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Taldundah Canal for the month of November 1872.

LENGTH OF CANAL OPEN—27¼ MILES.

LOCAL TRAFFIC.							ABSTRACT.					
Number of boats.	Nature of cargo.	Approximate value of cargo.	TONNAGE.		Ton mileage.	Tollage.	Number of boats.	Nature of traffic.	Value of traffic.	Tonnage.	Ton mileage.	Tollage.
			Maunds.	Tons.									Rs. A. P.
1	Empty ... ..	...	94	3	23	0 3 9	1	Local traffic	...	3	23	2 3 9
...	Demurrage for 8 days at 4 annas per day ... ..	...	...	...	...	2 0 0	...	Irrigation traffic	...	...	...	...
1		...	94	3	23	2 3 9	1		...	3	23	2 3 9

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

SOUTH-WESTERN CIRCLE.

Statement showing the amount of Traffic and Tolls on the Midnapore Section of the High Level Canal for the month of November 1872.
LENGTH OF CANAL OPEN—24 MILES.

LOCAL TRAFFIC.		STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.						
Number of boats.	Nature of cargo.	Approximate weight of cargo.	Tonnage exclusive of empty boats.		Approximate value of cargo.	Number of boats or rafts.	Nature of cargo.	Approximate weight of cargo.	Approximate value of cargo.	Tonnage exclusive of empty boats.		Weight of cargo.	Value of traffic.	Ton exclusive mileage boats.	Tollage.	Number of boats.	Nature of traffic.	Rs. A. P.
			Mds.	Tons.						Mds.	Tons.							
17	Coal	5,570	9,875	...	255	4	Hoglah mats	255	299	875	...	64,442	4,45,701	5,688	1,920	Local	Rs. A. P.	
17	Cotton	1,205	3,125	...	299	1	Iron stores	299	60	40	...	54,442	4,45,701	5,688	1,920	Local	Rs. A. P.	
12	Firewood	1,190	3,225	...	299	1	Coal	299	60	30	...	635	985	56	7	Irrigation	Rs. A. P.	
43	Grain	3,300	6,800	...	200	1	Empty boats	200	19	...	...	...	...	...	...	works	Rs. A. P.	
11	Hides and burns	770	8,275	...	...	...	Supplementary amount charged on return empty boats.	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
9	Jaggery and sugar	715	2,650	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
13	Metal	1,670	4,550	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
158	Miscellaneous	5,778	25,890	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
41	Oil and oilseeds	3,570	14,927	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
120	Paddy and rice	18,532	8,925	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
51	Piece goods	725	35,050	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
57	Thread	1,811	8,650	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
14	Garden produce	780	10,300	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
28	Pottery	628	4,231	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
27	Salt	4,630	2,875	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
26	Silk and indigo	319	5,775	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
13	June	1,375	8,450	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
11	Straw	1,270	4,400	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
18	Tobacco	1,389	3,700	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
9	Sand	7,684	8,600	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
6	Rafts of timber	126	8,325	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
104	Empty boats	593	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
1,019	Passengers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
	Miscellaneous Revenue.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
6	Police boats	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Rs. A. P.
1,950		54,442	1,59,150	4,0,610	635	7		635	908	1,4,5	56	55,077	4,46,649	5,739	1,927		Rs. A. P.	
																		Rs. A. P.

Tolls for same month in previous year were Rs. 1,108-12.

F. T. HAIG, Lieut.-Colonel, R. E.,
Offg. Joint-Secretary to the Government of Bengal
in the P. W. Dept., Irrigation Branch.

The 11th January 1873.

Weekly Return of Traffic Receipts on Indian Railways.

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 11th January 1873, on 223½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	5,149	14,325 4 2	1,313 3 0	56,940 20	19,103 6 9	1,751 2 11	3,064 5 11
Or per mile of railway ... ..	...	64 1 6	5 17 6	...	85 7 7	7 16 9	13 14 3
For previous 4 days of half-year ...	2,900	14,380 4 5	1,318 10	29,102 0	9,669 3 3	886 6 11	2,204 10 9
Total for 11 days	8,049	28,705 8 7	2,631 6 10	86,051 20	28,772 10 0	2,637 9 10	5,268 16 8
COMPARISON.							
Total for corresponding week of previous year	5,529	18,000 3 11	1,732 10 6	70,347 20	20,812 10 10	1,907 16 6	3,640 7 0
Per mile of railway corresponding week of previous year ... ..	.....	84 12 1	7 15 5	.....	93 5 3	8 11 1	16 6 6
Total to corresponding date of previous year	10,378	33,033 11 6	3,110 11 10	139,911 30	38,334 15 1	3,514 0 8	6,024 12 9

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 11th January 1873, on 1,380 miles open.

		Rs. As. P.		£ s. d.	Mds. Srs.	Rs. As. P.		£ s. d.	£ s. d.
Total traffic for the week	96,133	1,18,726 5 10	13,633 5 0	763,625 10	4,40,097 14 0	40,424 10 1	64,058 1 1		
Or per mile of railway ... ..	...	116 3 1	10 13 0	...	344 8 6	31 11 8	42 4 8	
For previous 4 days of half-year ...	67,247	98,963 7 0	8,089 3 0	405,830 30	212,970 11 6	19,522 0 4	28,511 9 4		
Total for 11 days	153,380	2,40,789 13 4	22,622 8 0	1,169,406 0	6,53,968 9 6	59,947 2 5	82,569 10 5		
COMPARISON.									
Total for corresponding week of previous year	95,505	1,40,007 10 9	13,659 0 9	710,850 20	4,67,687 5 2	42,871 6 8	56,530 7 5		
Per mile of railway corresponding week of previous year ... ..	.....	116 6 7	10 13 5	.....	305 6 1	33 9 10	44 3 3
Total to corresponding date of previous year	181,305	2,87,061 1 4	26,313 18 8	1,407,350 10	9,46,304 1 10	86,744 10 10	113,068 9 6		

NALHATI STATE RAILWAY.

Approximate Return of Traffic for week ended 11th January 1873, on 27½ miles open.

		Rs. A. P.		£ s. d.	Mds. Srs.	Rs. A. P.		£ s. d.	£ s. d.
Total traffic for the week	1,638	1,213 0 0	121 6 0	5,438 0	408 0 0	49 16 0	171 2 0		
Or per mile of railway	60	44 8 0	4 9 0	200 0	18 0 0	1 16 0	6 5 0		
For previous 1 week of half-year ...	810	633 0 0	66 6 0	4,709 0	343 0 0	34 16 0	101 2 0		
Total for 2 weeks	2,448	1,870 0 0	187 12 0	10,147 0	846 0 0	84 12 0	272 4 0		
COMPARISON.									
Total for corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for last 3 days of December 1872, on 156½ miles open.

		Rs. A. P.		£ s. d.	Mds. Srs.	Rs. A. P.		£ s. d.	£ s. d.
Total traffic for the week	10,520½	10,075 12 3	1,006 2 3	38,174 20	13,322 1 0	1,221 3 0	2,227 6 0		
Or per mile of railway	125	70 2 1	6 8 7	244 0	85 2 0	7 16 1	14 4 8		
For previous 26 weeks of half-year ...	765,212½	6,40,822 1 10	42,701 19 10	3,427,236 12½	10,29,083 13 0	94,332 13 10	137,124 12 8		
Total for half year	784,739	6,57,797 14 1	43,798 2 1	3,465,410 32½	10,42,405 14 0	95,553 16 7	139,351 18 8		
COMPARISON.									
Total for last day of December 1871	2,719½	2,449 7 4	224 10 8	10,906 3	3,878 14 5	355 11 5	580 2 1		
Per mile of railway corresponding week of previous year	17	15 10 5	1 8 8	70 0	24 13 7	2 5 5	3 16 1		
Total to corresponding date of previous year	750,618½	4,08,547 14 0	37,450 4 4	2,079,837 38	6,08,100 12 11	55,743 11 7	93,192 15 11		

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for the first 4 days of January 1873, on 156½ miles open.

		Rs. As. P.	£ s. d.	Mds. Strs.	Rs. As. P.	£ s. d.	£ s. d.
Total traffic for the week	16,076	13,553 11 3	1,242 8 5	36,583 26	11,073 10 4	1,015 1 8	2,257 10 1
Or per mile of railway	103	86 9 6	7 18 9	234 0	70 12 4	6 9 9	14 8 6
Total for 1 week	16,076	13,553 11 3	1,242 8 5	36,583 26	11,073 10 4	1,015 1 8	2,257 10 1
COMPARISON.							
Total for first 6 days of January 1873	27,440½	19,506 1 2	1,788 1 1	73,658 34	18,756 7 5	1,719 6 11	3,507 8 0
Per mile of railway corresponding week of previous year	175	124 10 3	11 8 6	471 0	119 13 7	10 19 9	22 8 2
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, JANUARY 29. 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, the 25th January 1873.

Present:

- HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *presiding.*
 The Hon'ble G. C. PAUL, *Acting Advocate-General.*
 The Hon'ble F. L. BEAUFORT,
 The Hon'ble V. H. SCHALCH,
 The Hon'ble LORD ULICK BROWNE,
 The Hon'ble C. E. BERNARD,
 The Hon'ble MOULVIE ABDOL LUTEEF, KHAN BAHADOOR,
 The Hon'ble B. D. COLVIN,
 The Hon'ble T. M. ROBINSON,
 The Hon'ble RAJAH JOTEENDRO MOHUN TAGORE, BAHADOOR,
 and
 The Hon'ble BABOO DIGUMBER MITTER.

EMBANKMENTS AND WATER-COURSES.

THE HON'BLE MR. SCHALCH laid before the Council the report of the Select Committee appointed to consider amendments referred to them in the Bill to amend the law relating to embankments and water-courses. The report was

now before the members, and he did not think it would be necessary for him to detain them long in the remarks which he was about to make. The Select Committee had accepted the amendments submitted to them with one or two slight variations, and had in their report remarked on the most important of those amendments. At the last meeting he offered a few remarks on the most important points, and His Honor the President supplemented those remarks in regard to one subject, the power to extend the Hooghly and Burdwan Drainage Act, which Mr. Schalch had omitted to notice. He now proposed that the report be received, and that the consideration of the Bill be deferred for a fortnight, so as to allow full time to members to look through the Bill, and he hoped that any hon'ble member who might desire to submit amendments would send them in to the Secretary by next Saturday, so that they might be carefully looked into and considered, before the Council proceeded with the consideration of the Bill on that day fortnight. He might mention that a petition was received from the British Indian Association too late to be printed and circulated to members. It was in the hands of the Secretary, and would be printed and furnished to the members as soon as possible. His present motion was that the report of the Select Committee be received and that the Bill be considered, in the form recommended by the Select Committee, on that day fortnight.

The motion was agreed to.

SALT ACT AMENDMENT.

The HON'BLE MR. BEAUFORT moved that the Bill to amend the Salt Act, 1864, be read in Council. He observed that at the last sitting he entered into a short explanation of the legal bearings of the Bill, and His Honor the President explained the practical necessity of it. He did not think it necessary to say anything more on the present occasion.

The motion was agreed to, and the Bill referred to a Select Committee, consisting of the Hon'ble Messrs. Schalch, Bernard, Digumber Mitter, and the mover, with instructions to report in a fortnight.

The motion was agreed to.

The Council was adjourned to Saturday, the 8th February 1873.

RESOLUTION ON THE REPORT ON THE CENSUS OF BENGAL.

GENERAL DEPARTMENT.

STATISTICS.

Calcutta, the 27th January 1873.

READ—

Letter No. 1128C, dated 31st December 1872, from Mr. H. Beverley, Inspector-General of Registration, on special Census duty, forwarding his Report on the Bengal Census of 1872.

Resolution.—The Lieutenant-Governor desires to acknowledge most warmly the services rendered by all the civil officers of Bengal in taking the first regular census ever attempted of the people of Bengal. The acknowledgments of Government are due to Mr. Beverley for the knowledge and skill with which he directed the census operations; to the Commissioners of Divisions for their careful supervision of the census work in their respective divisions; to all the Magistrate-Collectors and Deputy Commissioners of Bengal for the successful accomplishment of this great business by the intelligent and well-directed employment of all the official and indigenous agency at their disposal or within their influence; to the sub-divisional and the police officers who gave full and valuable aid to the Magistrate-Collectors; to all the Government servants of many departments, especially of the police and registration departments, who busied themselves in census affairs; and also to the zemindars, village headmen under their many titles, putwarees, ryots, and shop-keepers, who cheerfully gave their services as enumerators and supervisors, and undertook much trouble, some loss, and occasional hardship in effecting the census of their villages and neighbourhoods. In the margin are mentioned the names of some of the officers whose services in the census work were specially brought to the Lieutenant-Governor's notice. Mr. Campbell, however, is convinced that others whom he has not named must equally merit his thanks, because he feels that, unless many officials and non-officials in different parts of the country had exerted their utmost, the general results of the census could not have been so uniformly, or almost uniformly, satisfactory.

Mr. Molony, Commissioner of Rajshyhe.
 " Ravenshaw, Commissioner of Orissa.
 Colonel Dalton, C.S.I., Commissioner of Chota Nagpore.

Colonel Vazurenen, Boundary Commissioner.
 Mr. Magrath, Deputy Inspector-General of Registration.

Mr. Pellew,	Magistrate of Hooghly.
" Stevens,	ditto of Nuddea.
" Millett,	ditto of Bungpore.
" Bignold,	ditto of Bograh.
" Tayler,	ditto of Pubna.
" Lyall,	ditto of Dacca.
" Cowley,	ditto of Tipperah.
" Mangles,	ditto of Patna.
" Halliday,	ditto of Tirhoot.
" Barlow, C.S.I.,	ditto of Monghyr.
" Macpherson,	ditto of Cuttack.
Colonel Rowlett,	ditto of Maunbhoom.

Mr. Larymore of Hooghly.
 Baboo Issur Chunder Mitter of Baraset.
 Mr. Cotton of Chooudanguh.
 Baboo Kedar Nath Mullick of Kooshtea.
 Mr. Irwin of Jessore.
 Mr. Waller of Jhemidah.
 " Westmacott of Dinagepore.
 " Glazier of Rangpore.
 " Nolan of Serajgunge.
 Baboo Uma Churn Banerjee of Dukhin Shabazpore.
 Mr. Munro of Noakhally.
 " Forbes of Tajpore.
 " Luttmann-Johnson of Durbhanga.
 Captain Waller of Monghyr.
 Mr. Winter of Kendrapara.
 " Taylor of Khoordah.
 " Fiddian of Bludruck.
 " Forbes of Palamow.

that others whom he has not named must equally merit his thanks, because he feels that, unless many officials and non-officials in different parts of the country had exerted their utmost, the general results of the census could not have been so uniformly, or almost uniformly, satisfactory.

2. The general results of the census, so far as they were known in anticipation of Mr. Beverley's report, and the general success of the measure, have been noticed already in the Bengal Administration Report for the year 1871-72. Although, as remarked by Mr. Beverley, he has been in close communication with Government, and although the general plan of the report and of the maps was approved by the Lieutenant-Governor, still, owing to His Honor's absence from Calcutta when the report was under preparation, and to Mr. Beverley's desire to avail himself of the furlough long since assigned to him, and which he had so well earned, the Lieutenant-Governor had never seen the details of the census report until now, when its sheets have been finally struck off. The report contains a mass of interesting matter, on much of which present deductions,

and on much more of which instructions for future inquiries and observations, may be founded. But to do justice to the report would require much of the Lieutenant-Governor's time and attention which can ill be spared at this season. Moreover, owing to Mr. Beverley's departure, His Honor cannot avail himself of that officer's experience to work out points suggested by the report. Under all the circumstances the Lieutenant-Governor desires not to incur delay, nor to withhold this interesting and important volume from the officers of Government and from the public, and he will therefore dispose of it very briefly for the present. The Lieutenant-Governor must only regret that the census report figures do in some few respects differ from the figures furnished by Mr. Beverley for the Administration Report, and that these discrepancies should now, owing to Mr. Beverley's hurried departure, be imperfectly explained.

3. In the Administration Report for the past year it was explained that the Lieutenant-Governor had decided, with the consent of the Government of India, not to attempt the collection of all the detailed information which could be obtained in other provinces where previous censuses had been taken, and where ample administrative machinery existed. He felt that to seek too much would lead to the failure of all; at the same time he proposed that the census returns should give all the information regarding the people which was really necessary for practical purposes and attainable. The result has been, the Lieutenant-Governor hopes and believes, as stated in the Administration Report, "successful beyond expectation, and justifies him in thinking that the extent of the information sought was enough and not too much." The general result is an enumeration of the people, marvellously successful, all circumstances considered. There are only two exceptions to this result, namely—

- (1) The Cooch Behar Division, in all the districts of which the census is, for one reason or another, imperfect; but this division is of comparatively little importance;
- (2) The city of Calcutta, where, as was stated in the Administration Report, "several statements seem to point to the suspicion that the census was less completely and accurately taken than in the rural districts."

The sheets of the Administration Report regarding the census were sent to Mr. Beverley to draw his attention to absence of detailed information on this and other points; and the Lieutenant-Governor has learnt from Mr. Beverley that though he had again applied for information regarding the Calcutta census, he obtained none. It is, the Lieutenant-Governor considers, very greatly to be regretted that the metropolis is the only place regarding the census of which we have not a scrap of information beyond bare figures, how arrived at we know not. This is to be the more regretted because the census there has been more impugned than anywhere else; because some of the results (probably unprecedented in any other city or place in the world), such as the males being to the females as more than two to one, though they may be true, much require comment and explanation; and because the Calcutta census had been taken in greater detail than in the interior, and the results, if properly arrived at and properly reported, would be much more interesting and important than elsewhere. The Chairman of the Calcutta Justices must be urgently called upon for the Calcutta census report. The late Chairman, Lord Ulick Browne, must be asked if he had prepared any materials for a report, or if one or any of the officers subordinate to him have done so; if not, the present Chairman, Mr. H. Cockerell, must be requested to set to work and have the best report he can prepared with as little delay as possible.

4. Unfortunately the former estimates of the population of Bengal are so little reliable, that it is hopeless to attempt to found on the present census any estimate whatever of the progress of the population as a whole, or of the rate of increase or decrease in any part of the country. To get any such estimate at a future day we must depend on the life statistics of which we are just making a commencement, and on the comparative results which a future census may show. We can only try, in the course of certain inquiries of a statistical

character which we are now setting on foot, to ascertain whether there is good evidence that certain districts have much increased in population and cultivation, and that such increase has been general. It will also be necessary to inquire whether certain districts have decreased. It is remarkable that the districts which a comparison with Dr. Buchanan's estimates, which are much better than any recent figures, shows to have largely decreased in population, namely, the conterminous districts of Dinagepore, Maldah, and Purneah, are precisely those which a glance at the census map shows to be among all the districts of the Gangetic plain abnormally low in population. So far as we have information regarding the condition, and regarding the rates of land revenue and rent of these districts at the present time and at the time of the permanent settlement, it would seem that they have prospered less than any other districts of Bengal, and are now altogether *relatively* in a much lower position than they were at the end of the last century. Within these districts the ruins of the city of Gour testify that in some places, at any rate, disease has worked a great depopulation. Inquiry on this subject must certainly be made. The census report but too clearly points to the evidence of a serious effect on the population of the Burdwan district, caused by the disease which we are now attempting to combat. If the population there has not yet actually diminished as compared to previous periods, it seems but too clear that the number of persons in each household is now abnormally low in the fever tracts.

5. It will be well to prefix to the census report the general tables prepared for the Administration Report, giving a bird's-eye review of the population in its most important phases; and two such tables are accordingly attached to this resolution, as well as two other tables noticed below, in further elucidation of the general result. There is still some discrepancy in the areas of some districts as given in recent reports. For the purposes of the appended tables, which deal with the census figures and results, the district areas as given by Mr. Beverley have been adopted. It is hoped that when the rectification of district boundaries now under arrangement is completed, the correct district areas will be settled once for all.

6. The Lieutenant-Governor has read with special interest Mr. Beverley's account of the proportion of males and females, and his explanation of the preponderance of either in well-defined zones of country. The taking the census at the season when labourers and reapers go forth from the countries of surplus labor, has probably diminished the census totals in Chota Nagpore and some other districts.

7. Mr. Beverley has explained with greater detail what was noticed in the Administration Report, namely, the difficulty of settling who are and who are not Hindoos, and has mentioned that the people put under "Hindoos," when classified by religions, comprise many who are not Hindoo by race, and scarcely so in any other sense. The classification of the people in the nationality tables better distinguishes races, and shows a much larger and truer figure of aborigines; for instance, for the province of Assam the figures in the "nationality" table differ from the figures in the "religion" table as follows:—

<i>Nationality Table.</i>			<i>Religion Table.</i>		
		Total No. of souls.			Total No. of souls.
Aboriginal tribes	...	651,765	Hindoos	...	1,692,054
Semi-Hindooised-aborigines	...	614,248	Mahomedans	...	176,109
Hindoos	...	672,522	Bhuddhists	...	1,172
Mahomedans	...	176,195	Christians	...	1,379
Europeans, Eurasians, and Americans	...	471	People of other religions	...	8,656
Persons of Hindoo origin, but no longer Hindoos	...	10,223			
Bhooteas, Nepalese, &c.	...	2,029			
Total	...	2,127,453	Total	...	1,879,600*

* NOTE.—The details of religions in the Khasi and Naga and Garo Hills are not shown, hence the totals of the tables for nationality and religion do not agree.

As the nationality tables have not been summarised, an abstract table showing the nationalities of the several provinces is appended to this resolution. The Lieutenant-Governor fully concurs in the remark (paragraph 410 of the report) that the aborigines of Bengal, with perhaps the single exception of the Rajmehal hill-men, are not dying out, but, on the contrary, some of them are the most prolific of our people: the western aborigines, at any rate, are every day sending colonies into Bengal, besides furnishing emigrant laborers for the tea districts and for countries beyond the sea.

8. The Lieutenant-Governor was not aware that it was Mr. Beverley's intention to prepare tables of occupation in the excessive detail in which they appear in a form said to have been elaborated by Colonel Strachey. His Honor would have wished not to attempt this, because as our census has been taken, it was impossible to give these minute details with any approach to accuracy. The detailed figures in regard to male occupations are certainly not reliable; for instance there are shown--

6,965 occupancy ryots,
134 tenants-at-will,
11,507,197 cultivators.

It is not clear what distinction was intended between "cultivators" and either of the other two classes of ryots: at any rate these figures convey no useful information beyond the fact that there are altogether 11,514,296 cultivating ryots. The Lieutenant-Governor would further say that for any part of India an attempt to classify the occupations of all females seems to him superfluous. The effect of so much detail has been to make it difficult to arrive at the main divisions which may be more or less roughly of use. Moreover, as Mr. Beverley points out, the principal division into agriculturists and non-agriculturists cannot be very well defined, because many persons who have trades and professions hold or cultivate land as well, while many others, who come under caste names implying trades, are really cultivators pure and simple. The Lieutenant-Governor has little doubt that a larger proportion than are shown do in fact live by agricultural pursuits, or by trades directly connected with agriculture. A table giving an abstract of the occupation returns is attached to this resolution. There has been some re-arrangement of the laborers as explained in a note.

9. The Lieutenant-Governor much regrets that owing to the tardy issue of instructions and forms and to other circumstances, the returns of children at school were not properly made by many of the village enumerators.

10. The Lieutenant-Governor specially desires that all district officers will take efficient measures to arrange village by village and thannah by thannah, and to preserve with care, the original census returns, together with the office copies of the report, so that they may be always available for future reference. A summary of the census returns for each district will be printed and furnished for future use. It should be prefixed to a book in which the population of each town and village should be entered with the main divisions of the population into Mahomedan, Hindoo or "Other" religion, and into agriculturists and non-agriculturists.

ORDER.—Ordered that copies of this Resolution, with annexures, be published in the *Calcutta Gazette*, and copies of Resolution and Mr. Beverley's Report be distributed.

By order of the Lieutenant-Governor of Bengal,

C. BERNARD,

Offg. Secretary to the Govt. of Bengal.

GENERAL STATEMENT A.

A.—General Statement of the Result of the Census of

DISTRICTS.	Area in square miles.	Inhabited houses.			
			Men.	Women.	Total adults.
1	2	3	4	5	6
BENGAL.					
WESTERN DISTRICTS.					
<i>Burdwan Division.</i>					
Burdwan	3,523	435,416	661,104	774,895	1,435,999
Bancoorah	1,346	104,687	166,124	183,722	349,846
Beerbhoom	1,344	159,940	218,730	258,815	477,545
Midnapore	5,082	446,045	799,461	919,157	1,718,618
Hooghly with Howrah ...	1,424	322,703	478,159	575,715	1,053,874
<i>Total</i>	12,719	1,468,791	2,323,578	2,712,304	5,035,882
CENTRAL DISTRICTS.					
<i>Presidency Division.</i>					
24-Pergunnahs	2,788	393,737	777,679	748,582	1,526,261
Calcutta	8	38,864	262,077	118,974	381,051
Nuddea	3,421	352,017	546,109	670,213	1,216,322
Jessore	3,658	313,660	675,307	731,348	1,406,655
<i>Total</i>	9,875	1,098,278	2,261,172	2,269,117	4,530,289
<i>Rajshahye Division.</i>					
Moorshedabad	2,578	303,561	408,615	510,149	918,764
Dinagopore	4,126	264,526	482,736	492,367	975,103
Maldah	1,813	129,579	203,749	238,480	442,229
Rajshahye	2,234	246,371	388,571	449,533	838,104
Rungpore	3,476	331,079	703,602	750,440	1,454,042
Bogra	1,501	127,099	216,700	235,822	452,522
Pubna	1,966	198,220	369,918	415,354	785,272
<i>Total</i>	17,694	1,600,435	2,773,891	3,092,245	5,866,136
<i>Cooch Behar Division.</i>					
Darjeeling	1,234	18,864	36,585	27,873	64,458
Julpigoree	2,906	69,648	133,584	134,457	268,041
Cooch Behar	1,307	81,820	176,396	178,613	355,009
<i>Total</i>	5,447	170,332	346,565	340,943	687,508
EASTERN DISTRICTS.					
<i>Dacca Division.</i>					
Dacca	2,897	290,593	549,442	644,070	1,193,512
Furreedpore	1,496	157,518	318,318	371,784	690,102
Backergunge	4,935	321,657	738,019	789,134	1,527,153
Mymensing	6,293	308,008	727,616	790,087	1,517,703
Sylhet	5,383	286,594	526,706	552,766	1,079,472
Caehar	1,285	37,311	69,536	61,781	131,317
<i>Total</i>	22,289	1,401,681	2,929,637	3,209,622	6,139,259

NOTE.—The areas in column 2 do not correspond with the areas given in the Administration Report; over 17,000 square miles of waste and forest or uncensused tracts are excluded from district areas. The area figures in this statement, moreover, do not include the areas of the great rivers. It is hoped that when the

Bengal arranged with reference to Age and Sex.

POPULATION.

CHILDREN UNDER 12 YEARS.			Total males.	Total females.	Total of all classes.	Number per square mile.
Male.	Female.	Total.				
6	7	8	9	10	11	12
334,714	264,032	598,746	995,818	1,038,927	2,034,745	578
95,566	81,360	176,926	261,690	265,082	526,772	391
115,820	102,556	218,376	334,550	361,371	695,921	518
457,733	364,612	822,345	1,257,194	1,283,769	2,540,963	500
244,697	189,985	434,682	722,856	765,700	1,488,556	1,045
1,248,530	1,002,545	2,251,075	3,572,108	3,714,849	7,286,957	573
378,080	305,706	683,786	1,155,759	1,054,288	2,210,047	793
37,780	28,770	66,550	299,857	147,744	447,601	55,950
331,016	265,457	596,473	877,125	935,670	1,812,795	530
375,819	292,547	668,366	1,051,126	1,023,895	2,075,021	567
1,122,695	892,480	2,015,175	3,383,867	3,161,597	6,545,464	663
236,720	198,142	434,862	645,335	708,291	1,353,626	525
293,695	233,126	526,821	776,431	725,493	1,501,924	364
127,338	106,859	234,197	331,087	345,339	676,426	373
262,015	210,610	472,625	650,586	660,143	1,310,729	587
391,424	304,506	695,930	1,095,026	1,054,946	2,149,972	619
131,164	105,781	236,945	347,864	341,603	689,467	459
232,596	193,626	426,222	602,514	609,080	1,211,594	616
1,674,952	1,352,650	3,027,602	4,448,843	4,444,895	8,893,738	503
16,472	13,782	30,254	53,057	41,655	94,712	77
83,309	67,315	150,624	216,893	201,772	418,665	144
102,189	75,367	177,556	278,585	253,980	532,565	407
201,970	156,464	358,434	548,535	497,407	1,045,942	192
356,333	303,148	659,481	905,775	947,218	1,852,993	640
179,536	142,951	322,487	497,854	514,735	1,012,589	677
466,218	384,062	850,280	1,204,237	1,173,196	2,377,433	482
460,346	371,868	832,214	1,187,962	1,161,955	2,349,917	373
353,624	286,443	640,067	880,330	839,209	1,719,539	319
40,837	32,873	73,710	110,373	94,654	205,027	160
1,856,894	1,521,345	3,378,239	4,786,531	4,730,967	9,517,498	427

rectification of boundaries shall have been completed, the correct area of each district may be known, and one figure adopted for all future administrative returns. For this statement the areas given in the Census Report are taken, because the rest of the figures embody the census results.

A.—General Statement of the Result of the Census of

DISTRICTS.	Area in square miles.	Inhabited houses.			
			Men.	Women.	Total adults.
1	2	3	4	5	6
BENGAL.—(Continued.)					
EASTERN DISTRICTS.					
<i>Chittagong Division.</i>					
Chittagong	2,498	197,104	287,648	390,501	678,149
Noakhally	1,557	142,155	209,942	230,880	440,822
Tipperah	2,655	307,011	482,644	492,863	975,507
Chittagong Hill Tracts	6,882	13,354	27,994	17,788	45,782
Hill Tipperah	3,867	6,329	.....	.....	.....
<i>Total</i>	17,459	665,953	1,008,228	1,132,032	2,140,260
<i>Total for Bengal</i>	85,483	6,405,470	11,643,071	12,756,263	24,399,334
BEHAR					
<i>Patna Division.</i>					
Patna	2,101	269,814	491,394	557,358	1,048,752
Gya	4,718	327,845	609,553	678,861	1,288,414
Shahabad	4,385	275,041	522,657	615,324	1,137,981
Tirhoot	6,343	642,087	1,377,765	1,495,326	2,873,091
Sarun	2,654	293,524	606,897	713,653	1,320,550
Chumparun	3,531	242,228	466,874	467,028	933,902
<i>Total</i>	23,732	2,050,539	4,075,140	4,527,550	8,602,690
<i>Bhaugulpore Division.</i>					
Monghyr	3,913	328,174	553,983	614,778	1,168,761
Bhaugulpore	4,327	329,372	565,131	606,256	1,171,387
Purneah	4,957	313,447	548,569	583,320	1,131,889
Southal Pergunnahs	5,488	230,504	359,965	386,735	746,700
<i>Total</i>	18,685	1,201,497	2,027,648	2,191,089	4,218,737
<i>Total for Behar</i>	42,417	3,252,036	6,102,788	6,718,639	12,821,427
ORISSA.					
<i>Orissa Division.</i>					
Cuttack	3,178	281,430	453,337	525,376	978,733
Pooree	2,473	143,920	250,820	256,482	507,302
Balasure	2,066	138,913	232,933	269,707	502,640
Tributary Estates	16,184	253,284	389,185	409,294	798,479
<i>Total for Orissa</i>	23,901	817,547	1,326,295	1,460,859	2,787,154

Bengal arranged with reference to Age and Sex.—(Continued.)

POPULATION.						
CHILDREN UNDER 12 YEARS.			Total males.	Total females.	Total of all classes.	Number per square mile.
Male.	Female.	Total.				
7	8	9	10	11	12	13
248,411	200,842	449,253	536,059	591,343	1,127,402	451
152,125	120,987	273,112	362,067	351,867	713,934	459
299,747	258,677	558,424	782,391	751,540	1,533,931	578
12,889	10,936	23,825	40,883	28,724	69,607	10
.....	.....	.....	.....	.....	35,262	9
713,172	591,442	1,304,614	1,721,400	1,723,474	3,480,136	199
6,818,213	5,516,926	12,335,139	18,461,284	18,273,189	36,769,735	430
270,483	240,403	510,886	761,877	797,761	1,559,638	742
344,576	316,760	661,336	954,129	995,621	1,949,750	413
312,717	273,276	585,993	835,374	888,600	1,723,974	393
813,999	697,616	1,511,615	2,191,764	2,192,942	4,384,706	691
389,786	353,524	743,310	996,683	1,067,177	2,063,860	778
270,655	236,258	506,913	737,529	703,286	1,440,815	408
2,402,216	2,117,837	4,520,053	6,477,356	6,645,387	13,122,743	553
343,091	301,134	644,225	897,074	915,912	1,812,986	463
352,052	302,851	654,903	917,183	909,107	1,826,290	422
327,751	255,155	582,906	876,320	838,475	1,714,795	346
269,751	242,836	512,587	629,716	629,571	1,259,287	229
1,292,645	1,101,976	2,394,621	3,320,293	3,293,065	6,613,358	354
3,694,861	3,219,813	6,914,674	9,797,649	9,938,452	19,736,101	465
271,973	244,078	516,051	725,330	769,454	1,494,784	470
138,629	123,743	262,372	389,449	380,225	769,674	311
146,144	121,448	267,592	379,077	391,155	770,232	373
257,020	227,810	484,830	646,205	637,104	1,283,309	79
813,766	717,079	1,530,845	2,140,061	2,177,938	4,317,999	180

A.—General Statement of the Result of the Census

DISTRICTS.	Area in square miles.	Inhabited houses.			
			Men.	Women.	Total adults.
1	2	3	4	5	6
CHOTA NAGPORE.					
<i>Chota Nagpore Division.</i>					
Hazarcebaugh	7,021	150,493	233,750	257,539	491,289
Lohardugga	12,044	240,843	347,612	390,211	737,823
Singbhom	4,503	84,416	119,309	129,840	249,149
Maunbhoom	4,914	195,665	295,433	330,264	625,697
Tributary Estates	15,419	80,870	120,742	121,284	242,026
<i>Total for Chota Nagpore...</i>	43,901	752,287	1,116,846	1,229,138	2,345,984
ASSAM.					
<i>Assam Division.</i>					
Goalpara	4,433	72,655	145,919	145,859	291,778
Kamroop	3,631	103,908	185,461	173,091	358,552
Durrung	3,413	43,558	82,770	75,260	158,030
Nowgong	3,648	44,050	83,460	78,418	161,878
Sebsungor	2,413	55,604	99,718	90,245	189,963
Luckimpore	3,145	26,398	42,023	36,299	78,322
Naga Hills	4,900	....	....	....	....
Khasia & Jynteah Hills	6,157	....	39,882	44,298	84,280
Garo Hills	3,390	....	....	....	....
<i>Total for Assam ...</i>	35,130	346,173	679,333	643,470	1,322,803
Total country included in Census	230,832	11,573,513	20,868,333	22,808,360	43,676,702
Waste and country not censused	17,399				
<i>Grand Total ...</i>	248,231	....	....	....	....

D.—Statement showing occupations of the adult males included in the Census of each of the Provinces of Bengal.

OCCUPATIONS.	Bengal Proper.	Behar.	Orissa.	Chota Nagpore.	Assam.	Total.
Agriculture	7,259,618	3,613,231	819,251	836,134	526,084	13,054,318
Public Service	135,368	55,362	28,022	8,632	3,990	231,374
Professions	272,455	61,302	47,466	7,385	4,152	392,760
Private service	631,139	344,553	63,318	42,592	25,341	1,106,943
Commerce and trade ...	861,236	253,379	50,086	32,037	20,012	1,216,750
Manufactures, including Artizans	1,421,585	590,025	205,349	88,415	16,594	2,321,968
Laborers not classed as agricultural	679,841	1,014,351	71,695	88,120	20,016	1,874,023
Miscellaneous	423,025	170,913	41,108	13,679	29,862	678,587
Total non-agriculturists ...	4,424,649	2,489,885	507,044	280,860	119,967	7,822,405
Grand Total ...	11,684,267	6,103,116	1,326,295	1,116,994	646,051	20,876,723

NOTE 1.—There were a certain number of boys under twelve years of age returned as having a separate occupation of their own. These boys were reckoned in the statement of "Occupations of male adults." The occupations of persons in the hill districts of the Eastern Frontier were not shown in the census returns. The net result of these two discrepancies is as follows:—

Total adult males shown in column 4 of Statement A.	20,868,333
Ditto ditto as per this Statement D.	20,876,723
Difference	8,390
Being the number of boys returned as having occupations	48,372
Less the male adult population of Khasi Hills of which no detail of occupations could be given	39,982
	8,390

NOTE 2.—Under "Agriculture" laborers returned as agricultural are included.

NOTE 3.—It is probable that a large proportion of the laborers, not specifically classed as agricultural, are really employed as agricultural servants.

NOTE 4.—The male adult population of Cooch Behar other than agriculturists and the whole of the male adult population of Western Dooars are included in "Miscellaneous," as no details of occupation for them are shown in the Census Statement.

No. 1128C, dated Calcutta, the 31st December 1872.

From—H. BEVERLEY, Esq., Inspector-General of Registration, on special duty,
To—The Officiating Secretary to the Government of Bengal, General Department.

I HAVE now the honor to submit my detailed report on the first census that has ever been taken of Bengal. The results of the census are already known to you from the frequent communications, official and demi-official, which have passed between us. The present report is divided into two parts: the first treats of the manner in which the census was taken in different parts of the country; in the second the results are discussed at length. The synopsis of its contents which precedes the report will facilitate reference to the points noticed.

2. The work of compilation being now completed, the census office has been closed, and the clerks discharged. The original census returns and the registers compiled from them in this office have been returned to the district offices; the correspondence has been made over to the charge of the Officiating Inspector-General of Registration.

3. The accounts of the census office have also been closed, with the exception of one or two items, which I hope to adjust before leaving India. The total expenditure in connection with the census has amounted to about Rs. 2,16,000. This sum includes my own salary while on special duty, as well as those of the sub-registrars placed at my disposal, and also the bonus of Rs. 2,000 granted me by Government.

4. The services of Mr. H. O. King and Baboo Sunjeeb Chunder Chatterjee have been replaced at the disposal of the Officiating Inspector-General of Registration.

5. I desire to bring to the special notice of Government the great assistance I have received in the work of compilation from Mr. C. F. Magrath, Inspector of Registration offices. Mr. Magrath was at first in charge of the Patna branch office, and since his return to Calcutta has given me invaluable assistance in the head office. His knowledge of the manner in which the compilation has been effected will enable him to reply to any further references on the subject in my absence.

6. I have also to acknowledge having received great assistance from Mr. T. E. Ravenshaw, Commissioner of Orissa; Colonel E. T. Dalton, Commissioner of Chota Nagpore; Colonel D. Vanreuen, Boundary Commissioner; and many other officers. His Honor the Lieutenant-Governor is, I believe, aware of the great personal interest most of the district officers took in the success of the census.

7. The report has been printed at the Secretariat Press, and one thousand copies have been struck off. It is hardly necessary that I should comment on the very excellent way in which Mr. Lewis, the Printer, has done his work; but my acknowledgments are due to him for the despatch with which he has passed the report through the press at considerable personal inconvenience.

POSTPONEMENT OF COLLECTION OF ROAD CESS IN BENGAL.

Circular No. 4, dated Calcutta, the 20th January 1873.

From—The Offg. Secy. to the Govt. of Bengal in the Revenue Department,
To—The Collectors of Burdwan, Hooghly, 24-Pergunnahs, Nuddea, Jessore, Moorshedabad, Rajshahye, Dacca, Furreedpore, Mymensing, Tipperah, Monghyr, Bhaugulpore, Purneah, Cuttack, Pooree, Balasore, Hazareebaugh, and Maunbhoim.

IN continuation of my circular No. 2, dated 11th January, I am directed to inform you that the Lieutenant-Governor has decided that in no district besides Balasore shall any road cess rate be notified for the cess year 1872-73. The Lieutenant-Governor has taken this decision after full consultation with the Member in Charge of the Land Revenue Department of the Board of Revenue, who reports that the land valuations are not sufficiently forward to admit of a cess rate being declared. The Lieutenant-Governor and

Mr. Schalch agree in thinking it not desirable to look to the commencement of cess collections in any district besides Balasore before the 1st October next.

2. The Lieutenant-Governor hopes that the land valuations and house assessment may be complete in most of the cess districts first put in hand in ample time for the careful and regular transaction of the business required by sections 66, 67, 69, 70, 74, and 75 of the Act before the 1st October 1873. Rules for the collection of the cess will be drawn up by the Board of Revenue, and published by Government before that date.

3. The Lieutenant-Governor has seen with satisfaction that some Collectors and District Committees have prepared schemes for spending most usefully considerable sums from the District Road Fund during the present year. He is glad to be able to assure such officers and their Committees that the postponement of the collection of the cess need not prevent the prosecution of any really pressing works they may have in hand, or may propose to undertake. The condition of the provincial finances is such that the Lieutenant-Governor will be able to make either special grants or loans of provincial money in aid of the District Road Fund of any cess districts, which have undertaken works or schemes in the hope that the road cess income would come in during the current cess year. Any Magistrate-Collector, applying for a special grant, or for a loan on behalf of his District Committee, must submit through the Commissioner a full statement of—

- (1) the funds at the credit of the Committee on the 1st of the month in which application is made;
- (2) the expenditure the Committee had proposed to incur from the cess up to the 30th September, that is, to the end of the cess year 1872-73;
- (3) the old and new works on which the above expenditure has to be incurred;
- (4) the old and the new establishments which the Committee propose to retain during the current cess year.

The Lieutenant-Governor cannot undertake to make very large special *grants* to all districts, but he would hope by *grants* or *loans* to enable District Committees to carry out the schemes which they may have formed for the current year on the expectation of their realising half a year cess income before the 30th September 1873.

PROCEEDINGS OF THE DACCA DISTRICT COMMITTEE.

No. 314, dated Calcutta, the 21st January 1873.

From—The Offg. Secy. to the Govt. of Bengal in the Revenue Department,
To—The Commissioner of Dacca.

I AM directed to acknowledge the receipt of your letter No. 431, dated 15th January, forwarding copy of the proceedings of the Dacca District Road Committee and of the Magistrate-Collector's covering letter. My circular letter No. 4, dated the 20th January 1873, will have informed you that the Lieutenant-Governor considers that the preliminary operations under the Road Cess Act are not sufficiently advanced to warrant the notification of a rate or the collection of the cess until the beginning of the next cess year. In the case of the Dacca district, the Lieutenant-Governor has come to this decision with much doubt and hesitation, being very unwilling to check the well-directed action of the committee; but although there seems to be every reason to expect that the valuation will be completed at a very early date, he thinks it best and most in accordance with the spirit of the Act to delay an assessment till the valuation is substantially complete and the Collector's figures are sure and not conjectural.

2. The Lieutenant-Governor has been much interested by the perusal of the proceedings of the District Road Committee; he believes the committee are quite right in holding that in the Dacca district the waterways are more

important than the roads; at the same time the committee are quite right to keep the existing roads and paths in decent repair, and to undertake the completion of one or two important roads.

3. The Lieutenant-Governor has signified his readiness to make a further grant of provincial money to the Dacca committee for the work of the current year, and he hopes in that way to obviate any check to real work owing to delay in the cess; and the committee will be at liberty to spend as much of that grant as they may see fit upon the Goalundo road, in the importance of which the Lieutenant-Governor concurs. The Lieutenant-Governor would not be willing to take over the road as a provincial road, as he would prefer that it should remain in the hands of the district committee; but until the road is completed, he would be ready to consider, as far as provincial needs may permit, applications for provincial grants towards the first cost of constructing this important line.

4. A copy of the Magistrate-Collector's letter and of the committee's proceedings will be forwarded to the Public Works Department of this Government, who will be asked to advise the committee as to the usefulness of a dredging machine for the channels and rivers of the Dacca district. The proposal very much commends itself to the Lieutenant-Governor, who has the greatest hopes that it will be found practicable. Meanwhile, the committee will probably see fit to act upon the suggestion made in your 2nd paragraph, and to ascertain the character of the channels where dredging is most required.

5. The Lieutenant-Governor will be glad to facilitate any arrangement that may be found desirable in regard to the Dolai Khal alluded to in Mr. Lyall's 3rd paragraph.

6. With reference to paragraph 4 of your letter, I am to state that the Lieutenant-Governor would not trouble the District Committee to furnish the Government with copies of their proceedings, though he will be at all times glad to receive accounts of any discussions of special interest, and to publish them in the *Calcutta Gazette* supplement. The Lieutenant-Governor would be content to see the periodical reports and accounts of the committee's work; he has every hope that the district committees will manage their business better than Government could do it for them; and the correspondence now under acknowledgment shows that in one of the principal districts of Bengal the District Committee have undertaken their work promptly and seriously, and that the Magistrate-Collector, even when he dissents from the decision of the majority, is ready to carry out loyally (paragraph 7 of Mr. Lyall's letter) the scheme which the majority prefer.

No. 431, dated Dacca, the 15th January 1873.

From—A. ABERCROMBIE, Esq., Offg. Commissioner of the Dacca Division,
To—The Offg. Secretary to the Government of Bengal, Revenue Dept.

I HAVE the honor to submit, for information of Government, a copy of the proceedings of the Dacca District Road Committee, showing what they propose to do.

2. Their proposals seem to me well considered. The only thing I saw to suggest was that they should get levels taken through the Panya and Taltolla Khalls during this dry season, and take up, or at least select, places where to shoot the silt in case of our being able to buy or hire a dredging machine for use in the rains of this year.

3. I send also a map which will show the line of roads and khalls to be operated on, which was subsequently prepared at my request specially for submission to Government.

4. I shall be glad to know how far His Honor the Lieutenant-Governor wishes to be kept supplied with copies of these proceedings of Road Committee meetings. They are not, I think, required by the Act to be sent up, but I have been given to understand that His Honor delayed the publication of the rate of cess in the *Gazette* pending receipt of information as to the proposed work to be done.

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No. 142, dated Dacca, the 19th September 1872.

From—D. R. LYALL, Esq., Officiating Collector of Dacca,
To—The Commissioner of the Dacca Division.

I beg to forward herewith the statement of roads, khalls, and rivers prepared by the Vice-Chairman under section 67, as passed by the Committee.

2. There are a few points only to which I wish to draw your attention.

3. The proposed road and khall to Demra. This is not included in this year's estimate, which I forward separately, but this may cause some difficulty when taken in hand, as it will unite with the Dholai Khall, which is under Canals Act. In such a case some compromise will probably have to be come to. There is no doubt the road and khall proposed will be most beneficial, and I trust the impediment may be got over.

4. I am rather at a loss how to carry out the wishes of the Committee regarding a dredging machine. There is no doubt that without something of this kind we cannot improve the rivers, and the proposal appears to me a most sensible one. We are bound, however, before sinking so much in machinery, to ascertain fully what dredging machine can do. Why they have not been more largely used by Government, and whether there is any unusual difficulty in working them in this country. For this purpose, I beg you will request the Lieutenant-Governor to direct the Secretary to the Government in the Public Works Department to supply us with any information on these points which he may have at his command. In conversation with the Executive Engineer, he has very strongly supported the purchase of a machine as being the cheapest means in the end of deepening the many khalls of this district which require deepening and of keeping them open when deepened. A dredging machine would also have the advantage of being able to work all the year round; in the rains in the shallow khalls, and in the dry weather in removing bars on rivers; and it is the only means that I can see for improving the river communication with comparatively small danger of turning the river from its course, as spurs or other artificial impediments are so apt to do. The Committee, therefore, while wishing to do their utmost to improve communication, wish to have more information before actually including this expenditure in their estimate.

5. The Committee are unanimously of opinion that in this district water communication is more important than land; but they have recognized their obligation of having to keep up all existing roads, and for this purpose have devoted a large sum this year to repairs in the hope that once put in really good order which want of funds has hitherto prevented, a smaller sum will be sufficient to keep them in good working order for the future.

6. The Committee also desired me to point out that it would be hard if this district had to pay the whole sum required for the Goalundo road, and afterwards maintain it. When it is completed, the daks for Mymensing, Cachar, Sylhet, Tipperah, and Chittagong, will all be accelerated by a day, and the road will form part of a complete line from Calcutta to Chittagong, from Calcutta to Goalundo by rail, and thence by this road and the existing road to Narainunge, where the Megna has to be crossed, the road being again found at Daoodkandy. The part from Daoodkandy to Chittagong is provincial, and is, I submit, not nearly so important provincially as the part from Scalo to Dacca, which is the link wanting to make the road really useful. To complete this road fully would absorb nearly two years of the income available for new works, and as this would not be fair to the district in general, the completion of the road will have to be greatly delayed if help is not given either from provincial sources or from other districts. I may add that I believe some gentlemen here intend to propose a tramway communication to work traffic on this road as soon as it is completed, which would still further increase its usefulness.

7. The Committee have chosen the Panya Khall to commence their operation, and the choice seems a good one. I was personally in favor of the Taltollah Khall, but the Committee preferred to undertake, in the first place, a work which could be done within the year.

8. The estimate of receipts submitted is necessarily not a complete or perfect one. The amount of the cess is as yet only a matter of conjecture, though I believe it is not very far from the truth, and there has not been time to make detailed estimates for all the expenditure; lump sums have therefore been voted, and we are unable to go on till the arrangements regarding the District Engineer are complete. On this subject I addressed you separately in my No. 119, dated 30th ultimo, and I beg that this may be specially urged by you. The return of the sketch map is requested.

THE PRESENT ROADS IN EXISTENCE IN THE DISTRICT OF DACCA.

Vice-Chairman's statement after revision by the Committee.

1. *The Toke or Mymensing Road, 45 miles long.*—This road commences from the Rumna to north of the city of Dacca, and extends as far as Toke, on the bank of the Berhampooter, whence it continues in the Mymensing district. It has pucca bridges, with the exception of part of the Tongee bridge, and one wooden platform bridge for the first 30 miles. It has two ferries, one at Burmi and another at Toke, to cross the Bamur river. It goes through pergannah Bhowal of Dacca. This road requires only petty repairs. The traffic is chiefly foot

The bridges should, however, be made pucca all the way. The cost of yearly repairs is Rs. 2,000, and a further sum of Rs. 2,000 should be spent on it till the bridges are all in good order. The Committee sanctioned only Rs. 1,000 for this last.

2. *The Bady's Bazar Road.*—This road includes the branch to the Railway Ghât, Naraingunge, and the Furreedabad or Postgola loop in part, i.e., from beyond the municipal boundary. The total length of the main road is 16 miles, and the Naraingunge loop one mile, and the Furreedabad or Postgola loop about $1\frac{1}{2}$ miles. Of this road 10 miles are pucca, and require remetalling; half should be done next year. The rest requires petty repairs only. The river also threatens this road at Pagla, and an alternative line for $\frac{1}{2}$ of a mile may be necessary. It is to be determined whether it is necessary to keep up the Furreedabad or Postgola loop, which is a mere waste of money. To keep back the river, at least Rs. 1,000 will be required. The bridges are bad, so about Rs. 3,000 will be required, including the Udhubgunge bridge.

3. *The Road to Kolatiya.*—This road is unbridged, and is a mere bridle-path. It was begun with a view to a road to Goalundo. But this route is quite impassable. I would strongly recommend the Meerpore route. The path, however, goes through a thickly populated lot of villages, and should be kept up, and a few cheap wooden bridges fit for foot traffic put on it. If once put fairly in order, which could be done for about Rs. 500, even Rs. 300 a year would keep it in repair.

4. *The Monal Road.*—This is merely a fair-weather track. It was the post road to Furreedpore. Some Rs. 200 or 300 a year should be spent on this about November or December.

5. *The Srinagur Road from Moonshegunge to Srinagur with Joinshar branch.*—This is a mere foot-path, but having been made should be kept up. It will require at least Rs. 1,000 a year to keep it in good repair.

6. *The road from Shibaloy.*—(Opposite to Goalundo on this side of the Padma) to Dacca, *viâ* Manickgunge, now in construction. Of this road three miles are nearly done, and twelve miles remain to Manickgunge, also all the bridges. As the road is not yet open for traffic, I have put all down as new work. This road was estimated to cost Rs. 1,20,000 when complete from Seal to Dacca, but the estimate was for prison labor. It will probably cost one and half lakhs at least. The construction of this road, *viâ* Meerpore route, as mentioned above, will be a very important work. It will be a connecting link from Goalundo to the Chittarong road, which leads to Arracau, and there should by no means be a break from Manickgunge to Dacca.

7. *The Manickgunge Ferry Fund Roads.*—These are mere foot-paths, and require yearly repairs. About Rs. 500 will be ample.

8. *The Bozrojugini Road.*—This road will require a small sum for construction; say Rs. 1,800.

9. *A road from Doyagunge to Demra.*—Which will also include a direct khall, intersecting the present Dhoiai Khall, and shortening the route considerably. Total length about six miles.

10. *Mug Ba-ar Road.*—A short road to north of the town, about a mile long. This road is bridged, and only wants repairs.

KHALLS.

The khalls which will require opening out are marked purple in the map, and those marked, together with the necessary expenditure on roads, will take three years or more. They are:—

1. *The Taltollah Khall.*—The part of this khall which requires deepening is about nine miles long. It extends from Taltollah to a place called Daidha, or some place near it. It is most important as saving boats the long way by river route. This khall passes from north to south through Bikrampore. It is said that this khall was originally dug by Rajah Rajbullubh of Rajnugger, or his sons. It would be most advantageous to the people of Dacca, Naraingunge, and of Mymensing to go to Backergunge and other places south of Kietinassa river.

2. *The Tora or Mirzapore Khall.*—This khall commences at Mirzapore on the bank of the river down Ghior, and terminates at a place called Betila below Manickgunge, on the bank of the Dhalessary. It comes *viâ* the sub-divisional catcherry at Kachimer Tek, otherwise called Manickgunge. This khall when opened will save boats the long route by the villages to the south of Tillee, and afford access all the year to the sub-division.

3. *The Nulkhali and Bunder Khall.*—Nulkhali commences at Totolla on the bank of the Boorigunga and ends at Hazigunge on the Lukhya. Bunder Khall commences from Lukhya and ends at a place close to Bunder on the Berhampooter river, whence it goes to Megna, *viâ* Udhubgunge and Badiya Bazaar. These will save boats the long route by Baktabolee, and shorten the route to Sylhet by about a day.

4. *The Panya and Hurriscool Khalls.*—These two khalls will shorten the way to Furreedpore *viâ* Hilsanarce. The Panya Khall will also be most advantageous to all the people of the western part of Bikrampore and of the southern part of thannah Nababgunge in coming to and going from the city of Dacca; and Hurriscool Khall will also be most beneficial to the people of the northern part of thannah Nababgunge, of thannah Hurirampore in coming to Dacca quickly. The Panya Khall requires deepening from its mouth at Kaligunge to Baghoir,

and Hurriscool Khall requires deepening from its mouth at Hurriscool to the middle of the village called Chundrokola. The mouth of this khall at Hurriscool is almost opposite to the police station at Nababgunge.

5. *The Kanlabatee or Ischamati River.*—This river is dried up almost in every place during cold weather. This is required both as a means of communication and to give water.

6. *The Nalee Khall.*—This khall is also required for the above reason.

7. *The Srinagur Khall.*—This khall requires deepening from Alampoor south of Sheikarnagar, to Goalundo south of Srinagur; the extent is almost eight to nine miles. It will be most advantageous to the people of the western part of Bickrampore, who suffer much for want of water in dry season, as also for want of communication by water.

8. *The Mirkaaleem Khall.*—This is required for the eastern part of Bickrampore to give additional means of communication.

9. *The Berhampooter from Lakpoor to Toke.*—This part of the river requires deepening. This would shorten the route to Mymensing by about a day.

10. *The old Berhampooter from Chur Sindoo below Lakpoor to the south of Baliapara.*—This requires deepening. This will prove most beneficial to the people of Sonargaon and part of Mohessardi, who are living in the interior, which is becoming more jungly day by day for want of communication.

RIVERS.

The rivers Boorigunga, Dhalessary, Gujghata, Hilsamaree, Torag, and Lakhya will want deepening at certain places, which can only be done by dredging.

DACCA,
The 9th September 1872.

BROJOSOONDER MITRA,
Vice-Chairman.

FURTHER PAPERS REGARDING THE NEW NATIVE HOSPITAL ON THE STRAND BANK.

No. 1124, dated Calcutta, the 2nd September 1872.

From—W. D. BRUCK, Esq., Vice-Chairman to the Port Commissioners,
To—The Offg. Secretary to the Government of Bengal, General Department.

I HAVE the honor to forward herewith, for the information of His Honor the Lieutenant-Governor, the accompanying copy of a resolution passed by the Commissioners at a meeting held on the 9th August 1872, when they had before them an application from the Governors of the Native Hospital for the grant of certain strand bank lands for hospital purposes.

Copy of a Resolution passed at Meeting of the Port Commissioners held on the 9th of August 1872.

CONSIDERED an application from Dr. C. Macnamara on behalf of the Governors of the Calcutta Native Hospital, requesting that the Commissioners would make over to them, to be appropriated for the purposes of the new Native Hospital which the Governors propose to erect on the strand bank lands contiguous to the site known as Prossonno Coomar Tagore's Ghât, lots Nos. 35 and 36, with the road to the north of lot No. 35.

Resolved.—That the Governors be informed that the Commissioners will forward the application to Government, with an intimation that they agree to the transfer of lots 35 and 36, but not of the road north of lot No. 35, to the Governors of the Calcutta Native Hospital for the purpose named, but only upon the distinct understanding that the erection of the hospital upon this site shall not hereafter be brought forward as an argument against the construction of godowns or other buildings on the lots adjoining the proposed Native Hospital buildings.

No. 3663, dated Calcutta, the 23rd October 1872.

From—J. WARE EDGAR, Esq., Offg. Junior Secy. to the Govt. of Bengal,
To—DR. C. MACNAMARA.

THE Lieutenant-Governor having had before him your application to the Port Commissioners for land on the Strand Bank for the new native hospital, I am directed to inform you that the land will be available if you can arrange for the building of the hospital on the terms mentioned by the Port Commissioners, viz., that the erection of the hospital upon the site of lots Nos. 35 and 36 shall not hereafter be brought forward as an argument against the construction of godowns or other buildings on the lots adjoining the proposed native hospital.

2. You will have to show that you have the money for building before the land can be made over.

Dated Calcutta, the 28th November 1872.

From—DR. C. N. MACNAMARA, Superintending Surgeon, Native Hospital,
To—The Offg. Junior Secretary to the Govt. of Bengal.

WITH reference to your memorandum No. 3663 of the 23rd of October, I beg you will kindly solicit the Lieutenant-Governor to order lots Nos. 35 and 36 on the Strand Bank to be made over to the Governors of the Native Hospital, and enable us to commence the building on the 20th of December, as I trust the following statement will satisfy the Lieutenant-Governor that we have the means for building a hospital on the land in question.

The Governors have sold lots A, B, C, and G, of the Dhurumtollah hospital, reserving lots E and F for in-door and out-door patients. The premises have been sold for Rs. 75,000. Of this Rs. 25,000 have been paid into the Bank of Bengal, and Rs. 25,000 will be paid at the end of one year, the remaining Rs. 25,000 in two years. The property remains on mortgage to the Governors, and the money due bears interest at 7 per cent., so that the sale of the property, capital and interest, will at the end of two years realize not less than Rs. 80,000 (a).

Messrs. Colvin, Cowie have had an offer made them of Rs. 18,000(b) for the Gurranhutta dispensary.

The amount already subscribed by the native community towards our building fund is Rs. 46,000(c), and I shall be able to realize at least Rs. 12,000 more. We have saved some Rs. 3,000 by reducing our hospital expenditure, and intend to raise this sum to Rs. 10,000(d) before the end of two years.

The Governors have in hand from DeSouza's will Rs. 10,000(e) which they can dispose of for building purposes—

	Rs.
Thus we have secured	(a)—80,000
	(b)—18,000
	(c)—46,000
	(d)—10,000
	(e)—10,000

Total	1,64,000
As I have above stated, I shall collect from the natives in addition to the 46,000 (c) subscribed, at least	... ... ... ... ... 10,000

	1,74,000

leaving a sum of Rs. 26,000 to make up the two lakhs required for the building as per estimate submitted to the Lieutenant-Governor immediately before the deputation of Governors waited on His Honor. In this estimate I propose borrowing Rs. 40,000 on our property, but under existing circumstances we shall only have to borrow Rs. 26,000, and any sums collected over and above Rs. 56,000 will lessen the amount to be borrowed.

Messrs. Mackintosh, Burn and Co. enter into an agreement to build the hospital according to our plans for two lakhs of rupees. Mr. Bruce has kindly looked over these estimates, and reports that he is perfectly satisfied with them, and our Solicitors will draw out an agreement which Mackintosh, Burn and Co. are ready to sign. They promise to complete the building within twenty months of its commencement for two lakhs of rupees; the Governors of the hospital accept this contract.

I would beg to remark that reckoning on Rs. 58,000 as the amount we shall raise by subscription, I simply refer to the native community, it is to be hoped that not only the European population of Calcutta, but also the Government may be disposed to assist us; supposing, however, they decline to help us, as I have shown above, we can manage to complete our work without their aid.

No. 4520, dated Calcutta, the 17th December 1872.

From—J. WARE EDGAR, ESQ., Offg. Junior Secy. to the Government of Bengal,
To—The Surgeon Superintendent, Native Hospital.

I AM directed to acknowledge the receipt of your letter of the 28th November, and in reply to inform you that the Lieutenant-Governor is willing

the buildings for the new Native Hospital may be commenced by the 20th December, on the ground selected near the Strand Bank Road.

2. His Honor is also prepared to make over this site, which consists of Strand Bank lots Nos. 35 and 36, known also as Prosonno Coomar Tagore's Ghât lots Nos. 35 and 36, to the Governors of the Native Hospital, on their agreeing to the following conditions, namely :—

(1.) That the land shall revert to the Government should it at any time cease to be used for the purpose for which it is now granted.

(2.) That the erection of the hospital upon the site mentioned shall not hereafter be brought forward as an argument against the construction of godowns or other buildings on the lots adjoining the proposed Native Hospital.

(3.) That the plan of the new building be approved by the Government.

(4.) That if the full sum required be not raised, and the hospital built within two years from the date on which the land is made over, the land shall be forfeited to Government on the expiry of the two years.

Dated Calcutta, the 18th December 1872.

From—C. N. MACNAMARA, Esq., Supdt. and Surgeon of the Native Hospital,
To—The Offg. Junior Secretary to the Government of Bengal.

WITH reference to your letter No. 4520, just received, I beg to state that according to draft agreement the last payment on account of the proposed hospital is not to be made until two years after the building is commenced. The sums due on our property in Dhurruntollah do not all fall due until 20th December 1874. The builders beg us not to hurry them with the work. I would beg therefore for three in place of two years for completion of the work. If not then finished and paid for, let it be forfeited to Government.

The Governors have, in all their estimates and plans submitted to the Lieutenant-Governor, contemplated having to borrow some portion of the money necessary to pay for the building. If they should be obliged to do so, does the word "raised," used in paragraph 4 of your letter, cover them from risk of forfeiting the building to Government?

His Honor the Lieutenant-Governor told me he had ordered that we should be allowed 100 feet clear space to the south of the boundary line of lot No. 36. I understood from Messrs. Schalch and Bruce that this extra 100 feet was to be included within our hospital compound, but was not to be built upon. I do not think the Lieutenant-Governor, in speaking to me on the subject, said more than that the space was to be kept clear, that is, not built upon. Your letter (paragraph 1) does not clear the matter up. I should be very much obliged if you would kindly submit the question to the Lieutenant-Governor before circulating your letter No. 4520 to the Governors of the hospital.

I beg to forward the plans of the proposed hospital for the approval of Government.

Memorandum on Financial Arrangements connected with the rebuilding of the Native Hospital
By C. MACNAMARA.

MESSRS. MACKINTOSH, BURN AND Co. state they can build us a hospital, such as we require, on the banks of the river, for Rs. 1,95,000 (*Calcutta Gazette* of 12th June 1872, p. 491). Allow them Rs. 5,000 more, or Rs. 2,00,000 in all. How is this sum to be secured?

I have collected, and paid into account, from a few friends non-resident at Calcutta ...	Rs. 10,000
DeSouza's will in the hands of Governors ...	„ 10,000
Savings to be made, during two years the hospital is building, from present income ...	„ 8,000
I will guarantee to collect before the hospital can be built, and promise to make good deficiency, if any, between sum collected and sum estimated	„ 25,000

Total Rs. 53,000

Messrs. Mackintosh, Burn and Co., and Mr. Rowe, estimate the value of Garranhatta Dispensary and Dhurruntollah property to be (p. 491, as above) Rs. 1,47,300. Suppose it sells for this amount; this, with the above Rs. 53,000, will provide for the Rs. 2,00,000, the estimated cost of the new building.

With regard to the sale of Garranhatta Dispensary, there seems to be little doubt it will produce the sum of Rs. 20,000. This, together with the amounts realized by sale of our houses marked A and D on Mackintosh, Burn and Co.'s plan, together with the land C, will bring in Rs. 54,550—in all Rs. 74,550; and this much of our property might be sold to-morrow without in any way affecting the working of the hospital, for we should in fact still retain all that is essential to our purpose, with the exception of the Garranhatta Dispensary: and were this sold, a temporary place might be opened in the neighbourhood on a reduced scale, until the new hospital were built, when we should no longer require a Dispensary at Garranhatta.

It will be noticed, therefore, that we have Rs. 20,000 in hand, and are ready to give up property to-morrow to the extent of Rs. 74,550 without in any way interfering with our present working power: I cannot therefore see why we should borrow money for building the new Hospital; for, in addition to the Rs. 90,550 above referred to, subscriptions would be coming in, and I am saving something every month from our present income. These savings would at once be increased by Rs. 3,500 per annum, supposing the Garranhatta Dispensary were sold and a temporary Dispensary opened in its place.

If the new hospital were built, we reckon on paying the balance of account according to the estimate (*Calcutta Gazette*, p 491), as follows:—

	Rs.
Land given up for roads	4,500
Price of lot B	14,500
" " E	6,000
" " F	12,000
" " G (our present hospital)	35,500

It is evident we cannot sell the land we wish to use for roads leading from Dhurrumtollah and Hospital Lane to lot G, estimated at Rs. 4,500, because I wish to keep lot G, our present hospital, for the purposes it is now used. Its estimated value is Rs 35,000, which with the roads amounts to Rs. 40,000.

We must have this sum however, or we cannot pay for the new hospital, and yet we want to keep this portion of the property.

I would advise, therefore, that a sum of Rs. 40,000 be borrowed, on the security of this part of our estate, from Government; or I am prepared to lend the money myself, on the security of these houses and lands, at 6 per cent. Government might do it cheaper, only do not allow the realization of this sum to stand in our way. But how is it to be paid off? I think this may be effected by money saved on closing the Garranhatta Dispensary, say at the rate of Rs. 4,500 a year. I have estimated above that our savings from this source will be at the rate of Rs. 3,500 a year, supposing that we are to spend Rs. 1,000 a year on a temporary Dispensary; but when the new hospital is built, we can save the whole of the money now spent on Garranhatta Dispensary—a sum of Rs. 4,500 per annum, with which to pay our debt of Rs. 40,000, with interest.

The remaining lots B, F, and E, would, in all probability, realize the price they are estimated to sell for as above detailed.

In this statement I have excluded the Park Street Dispensary from our consideration: the Governors know my views on the subject. I think, unless the people in the neighbourhood support the Dispensary, that we are not bound to keep it open; they might be warned to this effect, and if they respond, the Dispensary can be continued; if not, it should, I believe, be closed so soon as our new hospital is built, and the sum now spent on it could be expended on the establishment and patients to be kept in our Dhurrumtollah Hospital.

In fact, the amount spent on the Dhurrumtollah Hospital will pass to the new hospital on the banks of the river: sums expended on our Park Street Dispensary will keep up the Dhurrumtollah Hospital, and Park Street will be closed, unless the people in the neighbourhood come forward in the meantime and pay, at any rate, some portion of the money we spend on it.

Mr. Bazett D. Colvin has kindly sent the following:—

Summary of above.

	Rs.		Rs.
Estimated cost of building new hospital ...	1,95,000	By cash in hand from subscriptions and legacies...	20,000
.. additional cost for contingencies ...	5,000	.. estimated sale proceeds of Garranhatta dispensary, and lots A, C, and D, proposed to be sold at once ...	74,500
Rs. ...	2,00,000	.. estimated savings and guaranteed subscriptions ...	33,000
.. cost of lot G, present hospital and lands for road proposed to be retained at estimated value ...	40,000	.. sale proceeds of lots B, E, and F ...	32,500
		.. value of lot G, and land for roads...	40,000
		Rs. ...	2,00,000
		.. balance, being estimated value of lot G, and road for lands as per contra, proposed to be borrowed on security of the same, and repaid by annual savings at the rate of Rs. 4,500 per annum ...	40,000
Rs. ...	2,40,000	Rs. ...	2,40,000

the buildings for the new Native Hospital may be commenced by the 20th December, on the ground selected near the Strand Bank Road.

2. His Honor is also prepared to make over this site, which consists of Strand Bank lots Nos. 35 and 36, known also as Prosonno Coomar Tagore's Ghât lots Nos. 35 and 36, to the Governors of the Native Hospital, on their agreeing to the following conditions, namely:—

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(3.) That the plan of the new building be approved by the Government.

(4.) That if the full sum required be not raised, and the hospital built within two years from the date on which the land is made over, the land shall be forfeited to Government on the expiry of the two years.

Dated Calcutta, the 18th December 1872.

From—C. N. MACNAMARA, Esq., Supdt. and Surgeon of the Native Hospital,
To—The Offg. Junior Secretary to the Government of Bengal.

WITH reference to your letter No. 4520, just received, I beg to state that according to draft agreement the last payment on account of the proposed hospital is not to be made until two years after the building is commenced. The sums due on our property in Dhurrumtollah do not all fall due until 20th December 1874. The builders beg us not to hurry them with the work. I would beg therefore for three in place of two years for completion of the work. If not then finished and paid for, let it be forfeited to Government.

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DeSouza's will in the hands of Governors ...	„ 10,000
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I will guarantee to collect before the hospital can be built, and promise to make good deficiency, if any, between sum collected and sum estimated ...	„ 25,000

Total Rs. 53,000

Messrs. Mackintosh, Burn and Co., and Mr. Rowe, estimate the value of Garranhatta Dispensary and Dhurrumtollah property to be (p. 491, as above) Rs. 1,47,300. Suppose it sells for this amount; this, with the above Rs. 53,000, will provide for the Rs. 2,00,000, the estimated cost of the new building.

With regard to the sale of Garranhatta Dispensary, there seems to be little doubt it will produce the sum of Rs. 20,000. This, together with the amounts realized by sale of our houses marked A and D on Mackintosh, Burn and Co.'s plan, together with the land C, will bring in Rs. 54,550—in all Rs. 74,550; and this much of our property might be sold to-morrow without in any way affecting the working of the hospital, for we should in fact still retain all that is essential to our purpose, with the exception of the Garranhatta Dispensary: and were this sold, a temporary place might be opened in the neighbourhood on a reduced scale, until the new hospital were built, when we should no longer require a Dispensary at Garranhatta.

It will be noticed, therefore, that we have Rs. 20,000 in hand, and are ready to give up property to-morrow to the extent of Rs. 74,550 without in any way interfering with our present working power: I cannot therefore see why we should borrow money for building the new Hospital; for, in addition to the Rs. 90,550 above referred to, subscriptions would be coming in, and I am saving something every month from our present income. These savings would at once be increased by Rs. 3,500 per annum, supposing the Garranhatta Dispensary were sold and a temporary Dispensary opened in its place.

If the new hospital were built, we reckon on paying the balance of account according to the estimate (*Calcutta Gazette*, p 491), as follows:—

	Rs.
Land given up for roads	4,500
Price of lot B	14,500
" " E	6,000
" " F	12,000
" " G (our present hospital)	35,500

It is evident we cannot sell the land we wish to use for roads leading from Dhurrumtollah and Hospital Lane to lot G, estimated at Rs. 4,500, because I wish to keep lot G, our present hospital, for the purposes it is now used. Its estimated value is Rs 35,000, which with the roads amounts to Rs. 40,000.

We must have this sum however, or we cannot pay for the new hospital, and yet we want to keep this portion of the property.

I would advise, therefore, that a sum of Rs. 40,000 be borrowed, on the security of this part of our estate, from Government; or I am prepared to lend the money myself, on the security of these houses and lands, at 6 per cent. Government might do it cheaper, only do not allow the realization of this sum to stand in our way. But how is it to be paid off? I think this may be effected by money saved on closing the Garranhatta Dispensary, say at the rate of Rs. 4,500 a year. I have estimated above that our savings from this source will be at the rate of Rs. 3,500 a year, supposing that we are to spend Rs. 1,000 a year on a temporary Dispensary; but when the new hospital is built, we can save the whole of the money now spent on Garranhatta Dispensary—a sum of Rs. 4,500 per annum, with which to pay our debt of Rs. 40,000, with interest.

The remaining lots B, E, and F, would, in all probability, realize the price they are estimated to sell for as above detailed.

In this statement I have excluded the Park Street Dispensary from our consideration: the Governors know my views on the subject. I think, unless the people in the neighbourhood support the Dispensary, that we are not bound to keep it open; they might be wanted to this effect, and if they respond, the Dispensary can be continued; if not, it should, I believe, be closed so soon as our new hospital is built, and the sum now spent on it could be expended on the establishment and patients to be kept in our Dhurrumtollah Hospital.

In fact, the amount spent on the Dhurrumtollah Hospital will pass to the new hospital on the banks of the river: sums expended on our Park Street Dispensary will keep up the Dhurrumtollah Hospital, and Park Street will be closed, unless the people in the neighbourhood come forward in the meantime and pay, at any rate, some portion of the money we spend on it.

Mr. Bazett D. Colvin has kindly sent the following:—

Summary of above.

	Rs.		Rs.
To estimated cost of building new hospital ...	1,95,000	By cash in hand from subscriptions and legacies...	20,000
.. additional cost for contingencies ...	5,000	.. estimated sale proceeds of Garranhatta dispensary, and lots A, C, and D, proposed to be sold at once ...	74,500
	2,00,000	.. estimated savings and guaranteed subscriptions ...	33,000
.. cost of lot G, present hospital and lands for road proposed to be retained at estimated value ...	40,000	.. " " sale proceeds of lots B, E, and F ...	32,500
		.. " " value of lot G, and land for roads...	40,000
			2,00,000
		.. balance, being estimated value of lot G, and road for lands as per contra, proposed to be borrowed on security of the same, and repaid by annual savings at the rate of Rs. 4,500 per annum ...	40,000
	Rs. ... 2,40,000		Rs. ... 2,40,000

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 25th January 1878.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
Burdwan Divn.	1 Burdwan	Jan. 28th*	Nil.	Moderately cool	Full winter crop expected. Rice market firm.	Fever decreasing.
	2 Bancoorah	" 25th	Nil.	Dry and cold	The rubee crops are all doing well.	
	3 Beerbhoom	" 25th	Nil.	Dry and fine	Winter crops doing well. A little rain would do good.	
	4 Midnapore	" 25th	0.18	Close and unseasonable; rain on two occasions.	No change of any importance. Prospects fair.	
	5 Hooghly	" 25th	Nil.	Fair; beginning to get hot; north wind.	Winter crops good.	
	Howrah	" 25th	Nil.	Cloudy; a very slight fall of rain on one day in the southern part of the district	The amun crop has been reaped, with the exception of the dhan, which is still under water. There has been a fair average outturn. Sugarcane is being cut.	
<i>Central Districts.</i>						
Presidency Divn.	6 24-Pergunnahs	" 28th	0.10	Fine, but rather warm at intervals considering the time of the year.	More than two-thirds of the amun paddy crops have been harvested. Mustard is being gathered, and other cold weather crops are progressing favorably.	Cholera and fever on the decrease.
	7 Nuddea	" 25th	Nil.	Seasonable	Generally favorable.	
	8 Jessore	" 25th	Nil.	Not so cold; foggy two mornings	Excellent.	
Rajshahye Divison.	9 Moorshedabad	" 25th	0.10	Clear and cold, cloudy during the first part of the week. There was hail on the morning of the 19th instant in thanna Dewan Serai.	Want of rain in December and up to last week is felt, and the seed crops in the eastern part of the district are poor and thin. Sugarcane has yielded a full crop, and mustard a 12-anna crop in thanna Sooty. Kalai a very good crop.	
	10 Dinagepore	" 25th	Rain not appreciable by the gauge.	Showery on the 19th instant, otherwise fine.	Good.	
	11 Maldah	" 25th	0.18	The first three days cloudy and rainy, the rest foggy, alternating with clear days. Temp., between 72 and 60°. Baro., between 29.850 and 29.650.	Kalai has already been reaped, and the reaping of sirsa has been commenced. About 14 annas outturn of these two crops is expected. Other standing crops of the season are doing well, and boro dhan is being sown.	
	12 Rajshahye	" 25th	.25	Some days of this week have been cloudy, and on last Sunday rain fell. Weather pleasantly cool.	Indigo is flourishing. The rubee crops are doing well.	
	13 Rungpore	" 25th	Nil.	Seasonable	Good.	
14 Bograh	" 25th	0.22	In the beginning of the week the weather was cloudy. A small quantity of rain fell on Saturday night and Sunday morning, since then it has been fair and cold.	The state of the crops continues as before. Minor crops promise well.		
15 Pubna	" 25th	0.06	Seasonable but cloudy, and the mornings generally foggy. There was very little rain at the Sudder Station.	Prospects of the winter crops good.		

* Telegram of the 28th January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>						
1873.						
COOCH BEHAR DIVN.	16 Darjeeling	Jan. 25th	Nil.	Cold and cloudy ...	As reported last week. In the hills wheat and barley progressing well; and in the Terai mustard is only on the ground.	District healthy.
	17 Julpigoree	.. .. 25th	Nil.	Warmer and brighter than last week.	Rain is required for mustard and pulses.	
	Cooch Behar	.. .. 25th	Nil.	Cold; mornings foggy	Prospects of cold weather crops good.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	.. .. 28th*	Nil.	Weather fair and cold	Prospects of crops very favorable.	
	19 Furreedpore	.. .. 25th	Nil.	Weather dry and cold	The rice crop is cut all over the district. The rubee crop is slightly suffering from want of rain.	
	20 Backergunge	.. .. 25th	·59	Cold	Good. The harvest is nearly over.	
	21 Mymensing	.. .. .. .	.....	.....	.....
	22 Sylhet	.. .. 18th	Nil.	Very cold for first half of the week. Thermometer at Char-gola down to 41°. Latter half of the week the weather has been foggy in the morning and cloudy and close during the day.	Boro dhan beginning to be planted out.	Return not received.
	23 Caohar	.. .. 18th	0·04	Fair. Cloudy at the latter part of the week and cold.	All dhan cut.	
	24 Chittagong	.. .. 18th	·23	Cold and seasonable in the beginning of the week. Since the 15th it has been unusually warm for the time of the year, with wind generally from the south. A smart shower of rain fell during the night of the 16th, and on the 18th it is again cooler.	Paddy nearly all cut. Cold weather crops coming on well.	
CHITTAGONG DIVN.	25 Noakhally	.. .. 18th	Nil.	Fair weather during the first half of the week; foggy mornings, with partially cloudy sky during the latter half. Average temperature during the week 66°.	Amun dhan completely gathered in. Cold weather crops progressing favorably.	
	26 Tipperah	.. .. 25th	Nil.	Fine and cold in the latter part of the week. Sharp shower of rain in the subdivision on the 19th. Snow is said to have fallen at Agurtollah in Hill Tipperah.	Sugarcane is being cut in many places, and the gathering of the mustard crop has commenced. The other cold weather crops are all flourishing.	
	27 Chittagong Hill Tracts	.. .. 18th	·4	A slight fall of rain on the 16th. Very cold during the 12th, 13th, and 14th instant.	The cotton crops have been gathered. The slight fall of rain has done much good to the mustard.	
	Hill Tipperah	.. .. 18th	Nil.	Dry, clear, and cold ...	Mustard still being gathered. Chillies and other cold weather crops in the field doing well.	

* Telegram of the 25th January received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.		1873.				
PAINA DIVISION.	28 Patna	Jan. 28th*	Nil.	Weather seasonable...	The rubee crops doing well, and though rain may be wanted for some, it would do harm to others. Poppy looking well, but backward.	Health of the district good.
	29 Gya	" 25th	·11	Fine, but warmer than previous week. Slight showers on the 18th and 19th instant.	The crops are flourishing.	
	30 Shahabad	" 25th	Nil.	West wind and clear	The crops on the ground generally good.	
	31 Tirhoot	" 25th	1·	Fair. The nights have been very cold. There was some rain during the week	Reports from all parts of the district continue favorable. The late rain has done much good to the rubee crops and has tended to lower the price of grain.	
	32 Sarun	" 25th	0·16	Cold and bracing. There was a little drizzling rain on Sunday.	The rubee crops are thriving well. The late rain has benefited the crops, but it was very partial and more is wanted.	
	33 Chumparun	" 25th	Nil.	Nights very cold; cloudy since this morning.	The prospects of the crops continue fair, but a little rain would be very beneficial.	
	BHAUGULPORE DIVN.	34 Monghyr	" 25th	0·13	There has been a little rain, which has done a great deal of good	Nothing could be better.
35 Dinanagar		" 28th*	Nil.	Fine and cold	Crops very good	Small-pox had at Coikong.
36 Purneah		" 25th	0·27	Cold and clear	A little rain would do good to the tobacco and rubee crops.	
37 Sonthal Pergunnahs		" 25th	·17	Cloudy during the early part of the week, with some rain, in the Sudder sub-division, and fine and clear the latter half. 51 inches of rain fell in Godda sub-division. No rain in Rajmehal or in Deoghur sub-division.	Generally favorable; the fall of rain in Godda sub-division will benefit materially the crops.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	" 28th*	1·75	Weather warm and cloudy.	Rubee crops doing well.	
	39 Pooce	" 18th	Nil.	Beginning to get hot...	The kolthi crop is coming on well.	
	40 Balasore	" 25th	Nil.	Foggy, and hotter than usual at this season.	The harvesting of winter crops going on prosperously.	
CHOTA NAGPORE.						
<i>South-West Frontier Agency.</i>						
41	Hazareebaugh	" 25th	Nil.	Very cloudy during early part of the week, which cleared up towards the end. A little rain has fallen in parts of the district.	With the exception of poppy, other crops are promising, and have benefited by the little rain which has fallen during the week.	Small-pox still prevalent in Bichak and Pachumbas sub-divisions.
42	Loharduggah	" 25th	Nil.	Warm and cloudy. A very slight shower on the 21st instant.	More rain wanted for the rubee crops. No reports from Palamow sub-division.	
43	Singbhoom	" 18th	Nil.	Seasonable	Favorable.	
44	Maunbhoom	" 25th	Nil.	Fine, but warmer	The rubee crops on the ground are all doing well, and promise a good out-turn.	

* Telegram of the 28th January, received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ASSAM AND ADJACENT HILLS.		1873.				
45	Goalparah	... Jan. 18th	Nil.	First three days fair, and last four days cool, with occasional clouds.	Prospect of cold weather crop is good.	
46	Kamroop	... „ 27th*	Nil.	Weather milder than before.	Mustard crop is being reaped. Prospects of pulse and sugarcane favorable.	Public health good.
47	Durrung	... „ 18th	0.39	Weather variable; squalls from the north-east; sky cloudy. Temperature very low.	Satisfactory.	
48	Nowgong	.. „ 18th	0.05	Cold and seasonable; cloudy and threatening rain the past three days. A slight shower one evening during the week.	The rice crop has been all cut and gathered in. Mustard, kalai, and sugarcane crops promise well, and large out-turns expected as the weather has been most favorable. Pruning of tea bushes on tea estates still being carried on.	
49	Sebsaugor	... „ 18th	0.90	The weather very cold, damp, and cloudy, with frequent drizzlings, and a few light showers of rain.	All the paddy crops harvested and housed, as also a portion of sugarcane crop. The other cold weather crops are satisfactory.	Cholera appears to have decreased.
50	Luckimpore	... „ 18th	0.83	Extremely cold and damp weather throughout the week, especially the last four days. At North Luckimpore sub-division weather fine and seasonable. Nights very cold.	Rice crop all cut and stored. Other crops, as mustard, sugarcane, &c. pulses, reported as going well, but more sunny weather wanted.	Public health good.
51	Naga Hills	... „ 11th	0.17	Seasonable throughout the district.	The crops have been all gathered in. The hill people are busy cutting their jooms.	
52	Khasi and Jynteah Hills.	.. „ 18th	Nil.	The weather has been dry and cold, and frost at night has at times been hard.	There are at present no crops under cultivation.	
53	Garohills	... „ 18th	Nil.	The weather has been fine; cold and bracing air. Strong wind occasionally, a few drops of rain fell on one day, but there was no fall appreciable by the gauge. The atmosphere has been hazy.	The Garo crops are now nearly all gathered; perhaps some cotton and a few vegetables remain to be gathered, and that is all. The Garos are now beginning to clear for jooms.	

* Telegram of the 27th January received on the 28th.

Published for general information.

CALCUTTA,
The 28th January 1873.

H. COTTON,
Assistant Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 5th to 11th Jan. 1873.	Rain from 12th to 18th Jan. 1873.	RAIN FROM 1st JANUARY 1873.		REMARKS.
					Inches.	Up to date.	
BENGAL.							
WESTERN DISTRICTS.							
BURDWAH.	Burdwan	Burdwan	Nil.	Nil.	Nil.	18th Jan.	
		Cutwa	ditto	ditto	ditto	ditto	
		Culina	ditto	ditto	ditto	ditto	
	Burdwan	Bood-Bood	ditto	ditto	ditto	ditto	
		Ranecunze	0.10	ditto	0.10	ditto	
		Jehannabad	Nil.	ditto	Nil.	ditto	
	Bancoorah	Bancoorah	ditto	ditto	ditto	ditto	
		Sooroe	0.02	ditto	0.02	ditto	
	Midnapore	Midnapore	Nil.	ditto	Nil.	ditto	
		Tumlook	ditto	ditto	ditto	ditto	
		Gurbetta	ditto	Not rec.	ditto	11th Jan.	
	Hoochly	Contal	{ Dy. Collr.'s Office	ditto	Nil.	ditto	18th Jan.
		{ Exo. Engr.'s Office	Not rec.	Not rec.	ditto	4th Jan.	
Hoochly		Hoochly	Nil.	Nil.	ditto	18th Jan.	
Howrah	Sernampore	ditto	ditto	ditto	ditto		
	Howrah	ditto	ditto	ditto	ditto		
CENTRAL DISTRICTS.							
PRESIDENCY.	Sauror Island	Sauror Island	ditto	ditto	ditto	ditto	
		Calcutta	ditto	ditto	ditto	ditto	
	Alipore	{ Dispensary	ditto	ditto	ditto	ditto	
		{ Jail	ditto	ditto	ditto	ditto	
	24-Pergunnahs	Russcerhaut	ditto	ditto	ditto	ditto	
		Barnet	ditto	ditto	ditto	ditto	
		Diamond Harbour	ditto	ditto	ditto	ditto	
		Barrapore	ditto	ditto	ditto	ditto	
		Satkhora	ditto	ditto	ditto	ditto	
	Nuddea	Barrackpore	ditto	ditto	ditto	ditto	
		Dum-Dum	ditto	ditto	ditto	ditto	
		Kishna-hur	ditto	ditto	ditto	ditto	
		Rongong	ditto	ditto	ditto	ditto	
		Meherpore	ditto	ditto	ditto	ditto	
	Jessore	Choondangah	ditto	ditto	ditto	ditto	
		Kooshtea	ditto	ditto	ditto	ditto	
		Ranshat	ditto	ditto	ditto	ditto	
		Jessore	ditto	ditto	ditto	ditto	
		Nural	ditto	ditto	ditto	ditto	
	Moorshedabad	Khoolueah	ditto	ditto	ditto	ditto	
		Jenidah	ditto	ditto	ditto	ditto	
		Basirhat	ditto	ditto	ditto	ditto	
		Magoorah	ditto	ditto	ditto	ditto	
Rajshahye.	Moorshedabad	Berhampore	0.10	ditto	0.10	ditto	
		Janoorkauli	Not rec.	Not rec.			
	Dinapore	City Moorshedabad	0.07	Nil.	0.07	18th Jan.	
		Jahripore	0.43	ditto	0.43	ditto	
	Malda	Azimnagar	0.05	ditto	0.05	ditto	
		Dinapore	0.59	Not rec.	0.59	11th Jan.	
	Rajshahye	Malda	0.27	Nil.	0.27	18th Jan.	
		Benliah	0.23	ditto	0.23	ditto	
	Rungpore	Natore	0.28	ditto	0.28	ditto	
		Rungpore	0.05	ditto	0.05	ditto	
Bhowanigunge		Nil	ditto	Nil.	ditto		
Bogra	Titalya	0.20	ditto	0.20	ditto		
	Bogra	Nil.	ditto	Nil.	ditto		
Pubna	Pubna	ditto	ditto	ditto	ditto		
	Serajgunge	Not rec.	Not rec.	ditto	4th Jan.		
COCH BEHAR.	Darjeeling	Darjeeling { Telegraph Office	ditto	ditto			
		{ Hospital	Nil.	Nil.	Nil.	18th Jan.	
	Julpigoree	Rungbee	Not rec.	Not rec.			
		Julpigoree	0.05	Nil.	0.05	18th Jan.	
	Cooch Behar Tributary State	Pallaoola	0.14	ditto	0.14	ditto	
Roda		Nil.	ditto	Nil.	ditto		
Bhutan Doora	Cooch Behar	ditto	ditto	ditto	ditto		
	Buxa	0.44	ditto	0.44	ditto		
EASTERN DISTRICTS.							
DACCA.	Dacca	Dacca { Telegraph Office	Nil.	ditto	Nil.	ditto	
		{ Hospital	ditto	Not rec.	ditto	11th Jan.	
	Furroedpore	Moonshegunge	ditto	ditto	ditto	ditto	
		Manickgunge	ditto	ditto	ditto	ditto	
	Backergunge	Furroedpore	ditto	Nil.	ditto	18th Jan.	
		Goulundo	ditto	ditto	ditto	ditto	
	Mymensing	Burrisul	ditto	ditto	ditto	ditto	
		Perozepore	ditto	ditto	ditto	ditto	
	Sylhet	Madaripore	ditto	ditto	ditto	ditto	
		Patcoakhally	ditto	ditto	ditto	ditto	
Cachar	Dowlat Khan	ditto	ditto	ditto	ditto		
	Mymensing	Mymensing	0.10	ditto	0.10	ditto	
Cachar	Jamulpore	Nil.	ditto	Nil.	ditto		
	Attah	0.04	ditto	0.04	ditto		
Chittagong	Kishoregunge	Nil.	ditto	Nil.	ditto		
	Sylhet	0.08	ditto	0.08	ditto		
Chittagong Hill Tracts	Cachar	1.00	0.04	1.04	ditto		
	Hylakandy	Not rec.	Not rec.				
Chittagong	Koyah	ditto	0.11	0.11	18th Jan.		
CHITTAGONG.	Chittagong	Chittagong { Telegraph Office	2.00?	0.10	2.10?	ditto	
		{ Jail	Nil.	0.23	0.23	ditto	
	Chittagong Hill Tracts	Cox's Bazar	ditto	Not rec.	Nil.	11th Jan.	
		Ranganutee Hill	Not rec.	ditto	ditto	4th Jan.	
	Tipperah	Noakhally	Nil.	Nil.	ditto	18th Jan.	
Comillah		ditto	ditto	ditto	ditto		
Hill Tipperah	Brahmanbariah	ditto	ditto	ditto	ditto		
	Hill Tipperah	ditto	ditto	ditto	ditto		

Not received 1st to 4th

Not received 5th to 11th Jan.

DIVISION.	DISTRICT.	STATION.	Rain from	Rain from	RAIN FROM 1ST		REMARKS.	
			5th to 11th Jan. 1873.	12th to 18th Jan. 1873.	Inches.	Up to date.		
	BEHAR.		Inches.	Inches.	Inches.	1873.		
PATNA.	Patna	Patna	0.17	0.01	0.18	18th Jan.		
		Behar	0.39	Nil.	0.39	ditto.		
		Barh	Nil.	ditto	Nil.	ditto.		
	Gya	Dinapore... { Jail Cantonment	Dinapore...	0.21	ditto	0.21	ditto.	
			Gya	0.05	ditto	0.05	ditto.	
			Nowadah	0.10	ditto	0.10	ditto.	
			Amungabad	Nil.	ditto	Nil.	ditto.	
	Shahabad	Arrah	Jehanabad	0.10	ditto	0.10	ditto	From 6th January.
			Arrah	0.30	0.02	0.32	ditto.	
			Sasseram	Nil.	Nil.	Nil.	ditto.	
			Buxar	0.15	0.05	0.20	ditto.	
	Tirhoot	Bhithoor	Bhithoor	Not rec.	Nil.	Nil.	ditto	Not received 5th to 11th Jan.
			Mozufferpore	0.09	1.30	2.20	ditto.	
			Durbangah	0.02	Nil.	0.02	ditto	Not received 1st to 4th January.
			Hajipore	0.15	Not rec.	0.15	11th Jan.	
Saran	Mudiubani	Mudiubani	0.18	Nil.	0.18	18th Jan.		
		Sectamaroe	0.20	ditto	0.20	ditto.		
		Tajpore	0.25	Not rec.	0.25	11th Jan.	Ditto ditto.	
Chumpran	Chuprah	Chuprah	0.13	Nil.	0.13	18th Jan.		
		Sewan	0.15	0.09	0.24	ditto	Ditto ditto.	
Mouhlyr	Motechhari	Motechhari	0.10	Nil.	0.10	ditto.		
		Bettiah	Not rec.	Not rec.	Nil.	4th Jan.		
		Mouhlyr	0.21	Nil.	0.21	18th Jan.		
BHAUGULPORE.	Bhaugulpore	Begoesrai	Begoesrai	Not rec.	ditto	Nil.	ditto	Not received 1st to 11th January
			Jainooie	0.28	ditto	0.28	ditto.	
			Bhaugulpore	0.23	ditto	0.23	ditto.	
	Purneah	Soopool	Soopool	Nil.	ditto	Nil.	ditto.	
			Mudheypoorah	ditto	ditto	ditto	ditto.	
			Banfa	ditto	ditto	ditto	ditto.	
			Purneah	ditto	ditto	ditto	ditto.	
	Sonthal Pergunnahs	Kishengunga	Kishengunga	ditto	ditto	ditto	ditto.	
			Arrah	ditto	ditto	ditto	ditto.	
			Deozhur	0.22	ditto	0.22	ditto.	
			Jamtara	Not rec.	ditto	Nil.	ditto	Not received 5th to 11th January.
	Sonthal Pergunnahs	Rajmahal	Rajmahal	Nil.	ditto	ditto	ditto.	
Pakour			ditto	ditto	ditto	ditto	Not received 1st to 4th January.	
Nya-Doomka			0.09	ditto	0.09	ditto.		
ORISSA.	Cuttack	Godda	Godda	0.11	ditto	0.11	ditto.	
			Cuttack { Telegraph Office Hospital	Nil.	Nil.	Nil.	18th Jan.	
			Jajipore	ditto	ditto	ditto	ditto.	
	Pooree	Kendrapara	Kendrapara	ditto	ditto	ditto	ditto.	
			Jantsingapore	ditto	ditto	ditto	ditto.	
			Falso Point	ditto	Not rec.	ditto	11th Jan.	
	Balasore	Pooree	Pooree	ditto	Nil.	ditto	18th Jan.	
			Khoordah	ditto	Not rec.	ditto	11th Jan.	
			Balasore	ditto	Nil.	ditto	18th Jan.	Ditto ditto.
	Cuttack Tributary	Bhuddruck	Bhuddruck	ditto	ditto	ditto	ditto.	Ditto ditto.
			Mehals	ditto	ditto	ditto	ditto.	
	CHOTA NAGPORE— SOUTH-WESTERN FRONTIER AGENCY.	Hazareebaugh	Sambalpoore	Sambalpoore	Not rec.	Not rec.
Hazareebaugh { Jail Dispensary				Nil.	Nil.	Nil.	18th Jan.	
Pachumba				ditto	ditto	ditto	ditto.	
Loharduggah		Rancheo	Rancheo	ditto	ditto	ditto	ditto.	
			Palmow	ditto	ditto	ditto	ditto.	
Singhboom		Chychnassa	Chychnassa	ditto	ditto	ditto	ditto.	
			Purulia	ditto	ditto	ditto	ditto.	
Maunbhoom		Gobindpore	Gobindpore	ditto	ditto	ditto	ditto.	
			Goalparah	Not rec.	ditto	ditto	ditto	Not received 5th to 11th January.
Kamroop		Dhoobree	Dhoobree	ditto	ditto	ditto	ditto.	Ditto ditto.
			Goalparah	0.11	ditto	0.11	ditto.	
Darrung		Gowhatry	Gowhatry	0.15	Not rec.	0.15	11th Jan.	
	Burpettah		0.01	ditto	0.01	ditto.		
Nowgong	Teypore	Teypore	0.04	ditto	0.04	ditto.		
		Mungledyo	Nil.	0.05	0.05	18th Jan.		
Soobasagor	Nwzong	Nwzong	0.31	Not rec.	0.31	11th Jan.		
		Secbangor	0.03	ditto	0.03	ditto.		
Luckimpore	Golaghat	Golaghat	Nil.	ditto	Nil.	ditto.		
		Jorehaut	Not rec.	ditto	Nil.	.....	
Naga Hills	Nazarah	Nazarah	Nil.	ditto	Nil.	11th Jan.		
		Debrooghur	0.10	ditto	0.10	ditto.		
Khasi and Jynteah Hills.	North Luckimpore...	North Luckimpore...	0.81	ditto	0.81	ditto.		
		Suddya	Not rec.	ditto	Nil.	.....	
Garo Hills	Santookoodting	Santookoodting	Nil.	ditto	Nil.	11th Jan.		
		Shillong	ditto	ditto	ditto	ditto.		
Garo Hills	Jaowal	Jaowal	0.21	ditto	0.21	ditto	Not received 1st to 4th January.	
		Cherrapoonjee	Not rec.	Nil.	Nil.	18th Jan.	Not received 5th to 11th January.	
		Tura	Nil.	ditto	ditto	ditto.		
		Benares	ditto	0.60	0.60	ditto.		
		Akyab	ditto	0.60	0.60	ditto.		

CALCUTTA,
The 25th January 1873.

H. F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 19th to 25th January 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. = 100.	WIND.		Rain.	Clouds.	Weather initials.
					Dry.	Wet.		Direction.	Velocity.			
CALCUTTA.	19th	10	30.058	30.077	72.5	71.0	92	NNE	...	...	K	f
		16	29.944	29.903	70.8	68.2	82	NNE	...	...	CS	
	20th	10	30.061	30.110	69.5	63.0	72	NNE	...	...	CK	
		16	29.908	30.017	75.0	67.4	65	ENE	...	...	...
	21st	10	30.160	30.179	71.0	64.5	68	ENE	...	...	...	o
		16	30.033	30.048	77.3	68.0	60	ENE	...	...	CS	b
	22nd	10	30.155	30.174	71.5	63.5	61	E	...	...	...	brude
		16	30.010	30.028	73.5	68.0	63	E	...	...	K	b
	23rd	10	30.157	30.176	72.0	64.5	64	E	...	...	...	brude
		16	30.062	30.020	77.6	68.5	60	E by N	...	...	CS	b
24th	10	30.124	30.143	72.5	64.5	62	E by N	...	...	...	b	
	16	29.961	29.982	77.5	66.5	54	NW	...	...	...	b	
25th	10	30.029	30.044	73.0	64.0	53	NNE	...	...	...	b	
	16	29.884	29.903	79.4	69.2	68	NNW	...	...	CS	b	
SAVOR ISLAND.	19th	10	30.067	30.073	73	74	81	WSW	3.3	...	N	b
		16	29.942	29.918	80	71	71	SW	7.7	...	KS	t
	20th	10	30.101	30.107	74	65	69	NE	6.3	...	CK	t, m
		16	30.000	30.000	79	70	61	NNW	8.5	...	KS	t, m
	21st	10	30.169	30.166	75	65	55	E	5.9	...	...	t, m
		16	30.034	30.041	79	69	58	SSW	6.0	...	K	t
	22nd	10	30.148	30.154	76	70	72	ENE	9.0	...	...	h
		16	30.15	30.021	78	70	65	S	9.4	...	K	h
	23rd	10	30.145	30.161	74	66	63	E	4.9	...	...	h, m
		16	30.012	30.018	79	69	53	SW	5.2	...	K	h, m
24th	10	30.123	30.128	74	66	63	E	3.9	...	C	h, m	
	16	29.970	29.976	73	71	65	SW	0.8	...	...	h, m	
25th	10	30.089	30.045	74	71	85	NR	3.5	...	C	h, m	
	16	29.900	29.906	78	73	77	SW	6.7	...	KS	h, m	
CHITTAGONG.	19th	10	29.994	30.088	73	69	80	NNE	2.8	...	...	b, m
		16	29.895	29.880	77	71	73	SW	0.2	...	CK, KS	b, m
	20th	10	29.991	30.085	73	69	80	N	2.6	0.10	K	b, m
		16	29.925	30.019	77	69	64	W	5.8	...	...	b, m
	21st	10	30.056	30.151	72	68	80	NNW	6.8	...	...	b, m
		16	29.958	30.051	78	72	73	N	6.2	...	...	b
	22nd	10	30.007	30.162	63	60	60	NNE	3.9	...	...	b
		16	29.933	30.027	76	64	48	WNW	8.2	...	...	b
	23rd	10	30.060	30.146	67	60	64	N	3.1	...	...	b
		16	29.888	29.942	77	66	53	NW	5.7	...	...	b
24th	10	30.054	30.149	70	61	70	NNW	6.5	...	...	b, m	
	16	29.880	29.974	75	64	51	W	7.2	...	...	b, m	
25th	10	29.944	30.030	71	65	70	N	6.2	...	...	b, m	
	16	29.830	29.924	77	66	53	W	6.0	...	...	b, m	
MADRAS.	18th	10	30.043	30.073	78	72	73	S	7	...	...	bo
		16	29.940	29.970	79	71	65	SE by S	9	...	...	bc
	19th	10	30.056	30.046	79	70	69	SE	6	...	...	bc
		16	29.947	29.977	80	71	69	E by S	6	...	...	bc
	20th	10	30.067	30.077	81	71	69	E by S	7	...	...	bc
		16	29.947	29.977	81	72	62	E by S	7	...	...	bc
	21st	10	30.078	30.108	82	71	65	E by N	9	...	...	bc
		16	29.989	29.909	82	72	59	E by N	9	...	...	bc
	22nd	10	30.074	30.104	83	72	56	ENE	13	...	...	bc
		16	29.968	29.994	83	71	52	ENE	10	...	...	bc
23rd	10	30.109	30.139	83	71	52	NE by E	11	...	...	bc	
	16	29.987	30.017	82	72	59	NE	10	...	...	bc	
24th	10	30.076	30.106	83	73	60	NE	9	...	...	bc	
	16	29.963	30.093	82	72	59	NE by N	11	...	...	bc	
CUTTACK.	18th	10	29.953	29.936	69	67	89	W	0.7	...	...	f
		16	29.830	29.912	87	72	45	SW	6.1	...	...	f
	19th	10	29.966	30.040	80	73	70	WSW	2.4	...	CK	
		16	29.848	29.930	88	73	46	NNE	5.5	...	CK	
	20th	10	29.996	30.079	74	71	69	E	2.2	...	CK, N	
		16	29.841	29.963	84	72	53	E	3.5	...	CK, N	
	21st	10	30.071	30.155	75	69	72	ENE	3.3	...	K, CK	
		16	29.833	30.016	80	71	62	E	6.1	...	KN	
	22nd	10	30.040	30.132	78	72	73	ENE	1.4	...	K, CK	
		16	29.901	29.984	83	70	49	SE	1.8	...	K, NC	
23rd	10	30.069	30.152	79	72	69	NNE	1.4	...	K, CK		
	16	29.921	30.004	82	72	59	WSW	1.5	...	K, NC		
24th	10	30.033	30.116	81	72	62	SSW	1.5	...	K, CK		
	16	29.878	29.960	61	70	46	WNW	2.5	...	K, CK, C		
AHMEDABAD.	19th	10	30.063	30.085	74	67	67	E	0.6	...	...	b
		16	29.947	29.969	76	71	77	WNW	4.5	...	...	b
	20th	10	30.060	30.082	78	69	61	N	0.5	...	...	b
		16	29.959	29.981	79	72	63	WNW	7.6	...	...	b
	21st	10	30.082	30.104	80	71	63	N	0.1	...	...	b
		16	29.950	29.981	81	68	48	W	5.8	...	...	b
	22nd	10	30.091	30.113	74	60	39	NNW	0.9	...	...	b
		16	29.954	29.976	77	62	38	NW	8.8	...	...	b
	23rd	10	30.083	30.090	74	64	55	N	0.6	...	...	b
		16	29.947	29.969	77	65	49	W	4.1	...	...	b
24th	10	30.051	30.073	76	66	56	K	0.4	...	...	b	
	16	29.934	29.946	79	67	50	NW	4.4	...	...	b	
25th	10	29.996	30.018	75	63	47	E	0.3	...	...	b	
	16	29.880	29.902	78	61	44	W	2.3	...	...	b	

* Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 15th to 21st January 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.		
Jan.	15th	29.923	80.3	62.8	133.0	89.5	63.6	58.9	0.70	S S W & W	...	143.8	...	Clear. Slightly foggy at 7 and 8 P.M.
	16th	930	78.0	59.5	128.5	68.4	61.9	58.7	.68	N E & E N E	...	74.8	...	Clear. Slightly foggy at 10 and 11 P.M.
	17th	902	78.7	60.0	120.6	68.4	61.7	56.3	.67	E N E & W by N	...	68.0	...	Clear. Slightly foggy at midnight and 1 A.M.
	18th	901	80.0	62.0	124.0	69.8	66.5	63.9	.82	S & W by S	...	36.2	...	Clear, stratos and cumuli. Foggy from 4 to 9 A.M.
	19th	900	78.0	67.7	123.4	71.5	67.3	64.8	.80	N N E & N E	...	51.3	...	Clear, stratos and cirrostrati. Foggy from 3 to 10 A.M.
	20th	930	77.5	64.0	124.8	69.9	65.0	61.1	.75	N E & E N E	...	120.1	...	Cirrocumuli, overcast and clear.
	21st	970	79.0	62.5	128.0	70.0	64.6	60.3	.73	E N E	...	94.8	...	Clear and cirrostrati.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	20.8
The max. temperature during the past seven days	...	80.3
The max. temperature during the corresponding period of the past year	...	78.0
The mean humidity during the past seven days	...	0.74
The mean humidity during the corresponding period of the past year	...	0.70
		Inches.
The total fall of rain from 15th to 21st	...	Nil.
	{ by lower rain gauge	...
	{ by anemometer gauge	...
Ditto ditto ditto	average of nineteen previous years	0.07
Ditto ditto between the 1st January and the 21st January	...	Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	0.16

GOPENNAUTH SEN,
In charge of the Observatory.

The 25th January 1873.

Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor-General's Office, Calcutta, in the month of December 1872.

LATITUDE 22° 33' 1" north. Longitude 88° 20' 34" east. Height of the cistern of the standard barometer above the sea-level, 18·11 feet.

MONTHLY RESULTS.

	Inches.
Mean height of the barometer for the month ...	29·977
Max. height of the barometer occurred at 10 A.M. on the 26th ...	30·186
Min. height of the barometer occurred at 4 P.M. on the 3rd ...	29·766
<i>Extreme range</i> of the barometer during the month ...	0·420
Mean of the daily max. pressures ...	30·052
Ditto ditto min. ditto ...	29·920
<i>Mean daily range</i> of the barometer during the month ...	0·132
⊖	
Mean dry bulb thermometer for the month ...	70·0
Max. temperature occurred at 2 P.M. on the 3rd ...	83·7
Min. temperature occurred at 6 & 7 A.M. on the 31st ...	57·4
<i>Extreme range</i> of the temperature during the month ...	26·3
Mean of the daily max. temperature ...	78·2
Ditto ditto min. ditto ...	63·4
<i>Mean daily range</i> of the temperature during the month ...	14·8
Mean wet bulb thermometer for the month ...	64·8
Mean dry bulb thermometer above mean wet bulb thermometer ...	5·2
Computed mean dew-point for the month ...	60·6
Mean dry bulb thermometer above computed mean dew-point ...	9·4
Inches.	
Mean elastic force of vapour for the month ...	0·534
Troy grain.	
Mean weight of vapour for the month ...	5·87
Additional weight of vapour required for complete saturation ...	2·13
Mean degree of humidity for the month, complete saturation being unity ...	0·73
Mean max. solar radiation thermometer for the month ...	132·4
Inches.	
Rained 3 days,—max. fall of rain during 24 hours ...	0·06
Total amount of rain during the month ...	0·09
Total amount of rain indicated by the gauge* attached to the anemometer during the month ...	0·05
Prevailing direction of the wind ...	N.E.

* Height 70 feet 10 inches above ground.

GOPEENAUTH SEN,
In charge of the Observatory.

The 25th January 1873.

Weekly Return of Traffic Receipts on Indian Railways.

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for week ended 11th January 1873, on 156½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	27,616½	23,732 12 6	2,175 10 1	74,728 25	25,612 4 5	2,347 15 10	4,523 5 11
Or per mile of railway	176	151 10 4	13 18 0	478 0	163 10 6	15 0 1	28 18 1
For previous 1 week of half-year ...	16,076	13,553 11 3	1,212 8 5	36,583 26	11,073 10 4	1,015 1 8	2,257 10 1
Total for 2 weeks	43,692½	37,286 7 9	3,387 18 6	111,312 11	36,685 14 9	3,362 17 6	6,780 16 0
COMPARISON.							
Total for corresponding week of previous year	30,653	17,489 12 9	1,603 4 8	71,207 10	16,257 1 8	1,400 4 8	3,003 9 4
Per mile of railway corresponding week of previous year	196	111 12 1	10 4 11	455 0	103 14 1	9 10 5	10 15 4
Total to corresponding date of previous year	58,063½	36,065 13 11	3,391 5 9	144,866 4	35,018 9 1	3,209 11 7	6,600 17 4

NALHATI STATE RAILWAY

Approximate Return of Traffic for week ended 18th January 1873, on 27¼ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	1,605	1,176 0 0	117 12 0	5,550 0	453 0 0	45 6 0	162 18 0
Or per mile of railway	61	43 0 0	4 6 0	204 0	17 0 0	1 14 0	6 0 0
For previous 2 week of half-year ...	2,418	1,876 0 0	187 12 0	10,147 0	846 0 0	84 12 0	272 4 0
Total for 3 weeks	4,113	3,052 0 0	305 4 0	15,697 0	1,299 0 0	129 18 0	435 2 0
COMPARISON.							
Total for corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 18th January 1873, on 1,280 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	100,539	1,41,618 15 7	12,911 14 10	658,518 0	3,60,098 8 0	33,009 0 7	45,990 15 5
Or per mile of railway ... ..	.....	110 10 3	10 2 10	.....	281 5 3	25 15 9	35 18 7
For previous 2 weeks of half-year ...	153,380	2,46,789 13 4	22,622 8 0	1,169,166 0	6,53,908 9 6	59,917 2 5	82,509 10 5
Total for 3 weeks	253,919	3,88,407 12 11	35,533 2 10	1,827,984 0	10,14,007 1 6	92,926 3 0	128,500 5 10
COMPARISON.							
Total for corresponding week of previous year	97,261	1,48,193 15 2	113,126 2 3	668,751 0	4,29,862 2 6	30,401 0 8	52,530 2 11
Per mile of railway corresponding week of previous year ... ..	.....	111 13 11	10 5 1	.....	335 13 3	30 15 8	41 0
Total to corresponding date of previous year	278,500	4,30,255 0 6	39,440 0 11	2,076,101 10	13,76,166 4 4	126,148 11 6	165,588 12 5

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 18th January 1873, on 223½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	5,214	14,327 7 5	1,313 7 0	72,712 0	22,886 9 9	2,087 18 9	3,411 5 9
Or per mile of railway ... ..	.....	64 1 8	5 17 6	.....	102 6 5	9 7 9	15 5 3
For previous 2 weeks of half-year ...	8,040	28,705 8 7	2,631 6 10	86,051 20	28,772 10 0	2,637 9 10	5,268 16 8
Total for 3 weeks	13,254	43,033 0 0	3,944 13 10	158,763 20	51,659 3 9	4,725 8 7	8,680 2 5
COMPARISON.							
Total for corresponding week of previous year	5,301	15,065 5 10	1,380 16 2	82,742 10	21,168 1 5	1,940 8 2	3,321 4 4
Per mile of railway corresponding week of previous year ... ..	.....	67 8 9	6 3 10	.....	94 14 10	8 14 0	14 17 10
Total to corresponding date of previous year	15,769	48,907 1 4	4,491 8 0	2,22,654 0	59,503 0 6	5,454 8 10	9,945 16 10

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for week ended 19th January 1873, on 156½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total traffic receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	31,842	23,185 13 0	2,125 7 4	90,292 24	20,290 13 6	1,851 14 10	3,977 2 2
Or per mile of railway	203	144 2 5	13 11 7	634 0	129 1 3	11 16 8	25 8 3
For previous 2 weeks of half-year	43,022½	37,290 7 0	3,417 18 6	111,312 11	36,685 14 9	3,363 17 6	6,780 16 0
Total for 3 weeks	75,534½	60,472 4 0	5,543 5 10	210,604 35	56,896 12 3	5,214 12 4	10,757 18 2
COMPARISON.							
Total for corresponding week of previous year	31,340	19,133 3 0	1,753 15 8	98,000 31	19,102 13 3	1,751 1 10	3,504 17 6
Per mile of railway corresponding week of previous year	200	122 4 0	11 4 2	632 0	122 1 0	11 3 0	22 7 11
Total to corresponding date of previous year	89,422½	50,128 0 11	5,145 1 5	243,766 35	54,110 6 4	4,900 13 5	10,105 14 10



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, FEBRUARY 5, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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AGENCY EMPLOYED IN TAKING THE CENSUS.

No. 571, dated Calcutta, the 4th February 1873.

From—J. WARE EDGAR, Esq., Offg. Junior Secretary to the Govt. of Bengal,

To—The Commissioner of Orissa.

I AM directed to thank you for the very interesting report on the agency employed in taking the census in the several districts of your division contained in your No. 178 of the 29th November last.

2. The Lieutenant-Governor fully concurs in your remark that the census has certainly demonstrated that a great deal more can be made of the agency which does exist than was before thought possible.

3. The account regarding the Pooree district is, I am to say, especially interesting, showing by existing facts the gradual change under our rule from the old Hindu self-governing system with all its grades of headmen and record-keepers of the hundreds, headmen and accountants of villages, staffmen of hamlets, and Thani ryots,—the freemen of the community, through the stages by which all these institutions disappear, and society resolves itself into two classes—of landlords without duties, and tenants without rights, over whom a foreign Government, acting through paid officials, can exercise no sufficient control or guidance.

4. The Lieutenant-Governor had hoped to make a beginning towards restoring a measure of village self-government by means of village municipalities moulded on the old lines, but His Excellency the Viceroy has seen fit to refuse his assent to the Municipal Bill, and we can now only do what little we can to save the remains of old institutions by protecting the people, so far as our imperfect means admit, from oppressions actually contrary to law. The Lieutenant-Governor trusts that you will foster the indigenous institutions still left so far as you are able, and at all times remember the remark above quoted from your 3rd paragraph that "a great deal more can be made of the agency which does exist than was before thought possible."

5. In like manner, in treating the Putwarree question, which is being separately dealt with, you must bear in mind the statements contained in your letter that Putwarrees, or the old Bhooses, existed in large numbers before the settlement, and that it is only by our action that they have been so much reduced as they now are.

No. 1781, dated Cuttack, the 29th November 1872.

From—T. E. RAVENSHAW, Esq., Commissioner of the Orissa Division,

To—The Offg. Secretary to the Government of Bengal, General Department.

In reply to circular No. 22 of 16th July 1872, I have the honor to submit the following information:—

Cuttack District.

2. The agents actively employed in the late census were as follows:—

- | | |
|---|-------------------|
| 1. Small zemindars. | 6. Schoolmasters. |
| 2. Mokuddums. | 7. Canoongoes. |
| 3. Surberakars. | 8. Putwarrees. |
| 4. Mustajers or ijaradars. | 9. Beheras. |
| 5. Tehsildars and paid servants
of zemindars, and mokuddums, &c. | |

There was no paid agency at all employed for the enumeration.

3. I am not aware that the census has brought to light any indigenous agency, the existence of which was before unknown, though it has certainly demonstrated that a great deal more can be made of the agency which does exist than was before thought possible.

4. There appears to be no class in this district resembling the padhan or mundul of Bengal, and who is recognized as the regular village head. The prominent village notables, whose existence may be traced from earlier time, are the following:—

- | | |
|----------------|---------------|
| 1. Mokuddum. | 4. Putwarree. |
| 2. Surberakar. | 5. Behera. |
| 3. Canoongoe. | |

The two former are the holders of well-known and ancient hereditary tenures, whose rights were recognized at the settlement. They are, in fact, the lords of the village where their tenure is situated, and exercise a considerable amount of local influence, especially when they are the representatives of the original holders. The mokuddumi is altogether a higher class of tenure than the surberakari, and a higher rate of malikana is attached to it.

5. *The canoongoe* is simply now a servant of Government, and is to the Collector in revenue what the police are to the Magistrate in criminal matters. He is paid a regular salary in this district: no jagheer is attached to the office.

6. *Putwarrees* existed in large numbers previous to the settlement, but it was found that the office to a great extent existed in name only, and that the zemindars either themselves occupied the jagheers, or that the holders

were their personal servants. The jagheers were therefore largely resumed and the number of putwarees reduced to about 100 for the district. Practically, for many years past the putwarees have ceased to exercise the functions for which they were especially appointed, and, so far from being the village accountants, are more frequently the servant and rent collector of the zemindar. The putwaree of the present day can hardly be called a village notable, and he exercises but little influence.

7. Behera is the title held by the headman or representative of a caste, and his influence in all social matters is necessarily very great, as all disputes or irregularities come before him. The jurisdiction of a Behera extends over a large circle of villages.

8. There are no such things as standing punchayets; but punchayets are very commonly resorted to for the disposal of caste and other disputes.

Pooree District.

9. In Pooree, as in other districts noticed by the Lieutenant-Governor, the indigenous functionaries of the village community have been declining, while the zemindar's power has been rising, though the zemindar's power has not been increasing in proportion to the decay of the village headmen.

10. If a line be drawn from Banpoor in the north-west to the Devi River in the south-east, it will traverse Pooree district in the direction from where the disintegration has been least to where it has been most completed. In Khoordah the institutions of Hindu village society are still living, though dormant, and they still bear purely Hindu names in that part of the country under the old rajahs; each village (*gram*) had two functionaries, the *prodhan* or man of action, and the *bhooee*, accountant. A set of such villages, called a *bissi*, was administered by a *bissoi*, under whom were a *khandait* (literally swordsman) or chief man of action, and a *bhoimul* or head accountant. The *khandait*, the *prodhan*, and so on, exercised police authority, while the other officials, as their name implies, were registrars or accountants. In the case of a hamlet (*patna*), a *danduasi*, literally a rodman or staffman, sufficed to keep watch and ward. Occasionally there were other organs exercising special functions. Thus, in an extensive *bissi* the *bissoi* would have under him a *kanribhagya* (literally a share taken of cowries) as his accountant. Again, there would occasionally be a *kotkoran*, literally special accountant. All these names, and to some extent the corresponding functions, still survive in Khoordah, but they are nowadays lumped in the generic name of *surberakar*.

11. Passing from Khoordah we come to a belt of country, Lembai and Sirian, Rahang, Chowbescood, where the disintegration has proceeded more than in Khoordah, but less than in the rest of the district. The four territories which I have named until a comparatively recent period formed part of the extensive domains of the Rajah of Khoordah. The sixteen *sasans*, or brahmanic communities of immigrants from Jajpore, settled by the old Pooree rajahs, still attest the ancient *régimé*. In other villages we find headmen with names similar to those of Khoordah,—the *prodhan* or the *surberakar*, with proprietary rights, and also enjoying his *heta* (literally benefice) or service land.

12. Passing on to Kotdesh, we come to memorials of Mahomedan influence. These numerous institutions of headman, which have been gradually undergoing extinction during the last generation, are called by an Arabic military name the *mokuddum*, literally the man who steps in front or faces at the head of the file. The institutions corresponded very much to the *surberakar* of Khoordah, but was modified somewhat to suit the Mogul

institutions. Where a *mokuddum* originally had the fortune to be enrolled as a *mazkuri* (literally enumerated) *mokuddum*, he generally was allowed at our settlement to pay his quota direct to the treasury, and so he is now merged with the zemindars and styled a zemindar. In like manner, under the Moguls the bissoi or khandait was made a *zemindar* or chowdry; the bhomul was turned into a canoongoe, and the bhooe into a putwaree.

13. The canoongoe still survives in name, but he is no longer a local functionary as before. He is now part of a highly centralized machinery, and he is paid as such from head-quarters like any other stipendiary of the empire. The putwaree also is disappearing. He ceased to be of any importance, even in name, from the time when putwaree papers were discontinued at the introduction of Act X.

14. Proceeding with the imaginary line which I have already drawn, we come to the country south-east of Kotdesh. In these the most of the village functionaries have disappeared, and society consists mainly of landlord and tenantry. The chief remaining agencies of the village are the chowkidar or chattia, the man who watches property, the village barber who does the shaving, and the village washerman who does the washing. Here, as in other parts of the district, and also as in other districts than this, these constitute the principal indigenous secular agency of the village, the chowkidar looking after crimes, while the barber and washermen are incidentally the guardians of village chastity and morality.

15. So much for the individualized indigenous agency of the rural society. I come now to the *punchayet* or the corporate indigenous agency of rural society. Here it is necessary to make a distinction between two widely different institutions known by that common name. For convenience I shall call the one body the *standing punchayet*, and the other the *special punchayet*.

16. The *special punchayet*, or so to speak the *punchayet ad hoc*, is the assemblage convened to adjudicate on a specific difficulty. This institution is in vogue with the superior class of society, more especially the twice born castes—Brahmans, Khetryas, and Baisyas, or those more modern castes which aspire to be successors of these three. These classes have no *standing punchayet*, but they convene one as occasion may require; for example, to decide over a betrothal or over a scandal about illicit connexion, and so on. In former times *punchayet* of this kind were also resorted to try cases of assault and of money claims; but this practice is now dying out, because the dissatisfied party can traverse the decision in a regular court, criminal or civil.

17. The *punchayet* as a standing institution is peculiar to classes of society, namely—

(1.) The minor trading classes, of whom the *teli* and the *guria* may be taken as a type.

(2.) The menial classes, of whom the *pân* and the *mehter* may be taken as an example. The former are sometimes nicknamed the *pataki* (literally fallen), and the latter *asparshiya* (literally untouchable). These may be rendered freely, and indeed, relatively speaking, with considerable accuracy, as “*the publicans and the sinners.*” With them the *punchayet* is a standing institution; for they are always falling into jeopardy of ceremonial uncleanness, and besides they have often to assume the defensive as a body against other classes of less precarious status.

18. With regard to the procedure of these two bodies, the *special punchayet* of the twice born castes usually does its work for nothing. Where it exacts a penalty or levies a subscription, the proceeds are applied not to the members of the *punchayet*, but for some object of general benefit to the caste.

On the other hand, the members of a standing punchayet being naturally poorer men, requisition one or other or both parties in dieting for the meeting for the time being.

Balasore District.

19. The indigenious agency employed in census work was chiefly that of surberakars and inokuddums, barooas, and other village headmen.

20. As to the origin and history of these persons I am unable to give any information. As far as my reading in the vernacular literature of former times has gone, I am disposed to believe that from the earliest times the village community with its headman elected by the villagers, has been in existence. The powers and responsibilities of the headmen have varied from time to time in the most irregular and capricious manner, and whatever may have been the cause, it is now certain that in the Lower Provinces you will nowhere find them holding a position equal in rank or privileges to the desmukhs or patels of Bombay and Madras, or even the lumberdars of Upper India. It is undoubtedly true that the tendency since the introduction of our revenue system in the Lower Provinces has been to allow their powers and position to be overridden by those of the zemindar.

21. *Purshathi* पुरशथि.—The origin of this class of men is stated by local tradition to be, that they were created in former times (probably not later than 1450 A.D.) by zemindars wishing to extend the cultivation of the country, which we know from native historians to have been but thinly peopled, north of the Kansbans. Previous to the date above quoted, the rajahs of Orissa did not extend their sway north of that river, and the country between that and the frontier of Bengal was all desert and jungle. Centuries later, this state of things existed in a modified form. The road from Bengal to Orissa was hardly opened at all, and very little communication existed between the two provinces. The Mahomedans in Akbar's time (close of the sixteenth century) were the first to open thorough communication. To this day the country between Balasore town and Jellasore is called the Barakoshi or twelve-coss road, and was long considered almost impassable. The purshathis are found chiefly between the Kansbans and Sooburnekha precisely in this part. When a zemindar wished to extend his cultivation, he deputed a person to settle and clear a tract of country. This was the purshathi. He bought the land from the zemindar, with a reservation of proprietary rights of a certain kind to the latter. At the settlement the purshathis were recognized as subordinate tenure-holders and the zemindar received 10 per cent. malikana, the purshathi 30 per cent. If the estate is sold, the right of the latter remains intact and cannot be disturbed by the purchaser whether he purchase at a Government sale for arrears of rent or at a private sale. The purshathi exercises all the powers of a zemindar. He collects the rents, hands over to the zemindar 70 per cent., being 60 per cent. for Government and 10 per cent. for the zemindar's malikana. The latter has no power of interfering in the internal management of the estate. If the purshathi reside on the estate, he acts in all respects as village headman. If, as is often the case, he is non-resident, there is another surberakar or village headman under him, paid not by malikana, but by regular salary. He is also called "shikami kharidar."

22. Among the settlement proceedings there are numerous cases in which the rights of the purshathi or kharidar are inquired into and settled. Thus eight patnas in Surbar were claimed by Tribikram Chowdry on the strength of kibalas produced by him. The Deputy Collector after examining

the documents and hearing the zemindar's objections found that Tribikram and his ancestors had been in possession continuously from a time prior to British rule under the title of purshathi or kharidar—purshathi of the 1st grade in certain patnas and of the 2nd grade in others. The Collector on appeal made him purshathi of the 1st grade in all the patnas. In the settlement eviderd all the purshathis' names in the Surhar estate are entered with a note that they are to enjoy the same malikana as mokuddums. In the Commissioner's confirming rubakary it is stated that the purshathi is one who has purchased land from a zemindar in order to found on it a village, and that he is the "malik" or owner thereof, subject to payment to the zemindar of the rent minus his 30 per cent. malikana. The tenure could be sold or transferred at will.

23. *Mokuddum*.—This is also a subordinate tenure-holder and was originally the headman of a village. He gets 25 per cent. of the malikana and pays the rent to the zemindar, being 60 per cent. for Government and 15 per cent. for zemindar's malikana. The office is hereditary and transferable, but the zemindar can sell the tenure for arrears of rent. In their case as in that of the purshathi, the zemindar does not interfere in the internal management of the estate nor take upon himself any responsibility for loss by accidents or convulsions of nature and the like.

24. *Surberakar* is the regular village headman. He is remunerated by a commission of 15 per cent. or 10 per cent. on the collections. He is appointed by the zemindar. There are two kinds of surberakars. The maurusi or hereditary surberakar is, as his name imports, hereditary headman. The first of his race had been appointed by the zemindar, who, however, has precluded himself by the appointment from interference in the succession. The non-hereditary surberakar is appointed on each occurrence of a vacancy by the zemindar.

25. Even a hereditary surberakar may be dispossessed for misconduct by the zemindar, though owing to the prevailing ignorance of the terms of the settlement it never happens that they are dispossessed; their rights are sold by civil or revenue courts in total defiance and neglect of the law. The non-hereditary surberakar is in fact a mere servant of the zemindar, displaceable at pleasure. Both classes collect the rents and remit them to the zemindar, who rarely, if ever, interferes in the management of the estate. They exercise great authority in the village, being generally called "nakim" by the people, and are terrible despots as a rule.

26. *Putwaree*.—Although bearing this title, the persons I am now about to mention are a totally different class from the regular putwarees under Regulation XII of 1817. They are merely collecting agents, and are paid by money wages. They are of course displaceable at will, and are found only in a few places, not being recognized by the settlement.

27. *Padhan Karji*.—I do not see much difference between these two classes. They are appointed by the zemindar and are paid by money wages. They exercise great influence in the village; but the post is not hereditary. I believe the padhan or pradhan is a relic of the old village headman, degraded now into a mere rent collector. He is quite at the mercy of the zemindar. The karji on the other hand is a recent creation, a mere agent put in by the zemindar. The padhan is always a resident of the village, and a thani ryot, whereas the karji is not always a ryot or even a resident.

28. *Baroa* is a thani ryot, generally one of the largest cultivators in the village. He is appointed in some cases by the zemindar, in other cases he is elected by the ryots subject to the zemindar's approval. The

position is often honorary; the barooa is regarded as the head ryot and spokesman; when he is merely this, he gets no pay. If he add to this the task of collecting rents, he receives an allowance in money. He is removable at pleasure of the zemindar. This post also, I presume, is a relic of the old village headmanship, though much degraded.

29. There are no village panchayets in Balasore of the kind alluded to in Government letter under reply. If any caste question arises, a caste panchayet is convened for the occasion only.

30. There are forty patwarees under Regulation of 1817, appointed at the settlement and remunerated by grants of land. Their functions are those described in the Regulation. They do not collect rent for the zemindars, with the exception of three in Bhograi, who collect rents, and are paid in cash. They are chiefly of the Karan or writer caste; but there are brahmins, chasas, rajus, and other castes among them. They do not keep shops or lend money.

31. But little trace remains of the old police organization beyond a few paiks and chowkidars; particulars of these will be found specially reported on in Government printed selections.—The Village Watch, pages 55 to 62.

STATISTICS OF JUTE CULTIVATION.

(RESOLUTION.)

GENERAL DEPARTMENT.

GENERAL.

Calcutta, the 4th February 1873.

THE Lieutenant Governor has several times remarked that this Government is sadly wanting in industrial statistics, and he trusts that an attempt may soon be made in some shape to supply the want. But meanwhile he would much desire to get some information regarding our greatest commercial staple—jute: where and how it is grown; from what plants; what are the qualities and varieties; how it is prepared for the market; how brought to market; and through what hands it passes, &c., &c. Gentlemen who have come out from home with a practical interest in such questions have lately asked His Honor to answer some of them, and he has been unable to answer them. He has long sought such information himself, and has been unable to get it with precision. An inquirer is constantly beset by the pitfalls caused by the varieties of language and of translation. Mr. Campbell does not know to what language the word jute belongs, nor what it really means. The fibre or fibres commonly called jute are called by the natives by various names, some of which are also applied to other fibres. The Lieutenant-Governor has been shown on the ground by competent persons two very distinct plants, each of which was asserted to be *koshtah*, generally supposed to be the most specific term for jute; and he cannot discover whether the whole of the jute of Eastern Bengal comes from the same plant as what is called the *desee* or country jute of the districts about Calcutta; in fact, whether the jute of commerce is the product of one plant or of two or more plants. He has seen it asserted in one report that jute is an export from Bengal to Orissa, and in another that it is an import from Orissa to Bengal. He has been told by very competent men that the quality of the jute brought to market is deteriorating owing to reckless extension of cultivation in lands not fitted for the purpose; by others, that it is not deteriorating at all. Be that as it may, the question to what extent jute may be extended to new fields, to new

districts, or to new provinces (as to Assam and Burmah), and how far our soils will bear long cropping with it, is one of enormous importance. Mr. Halsey, the Officiating Commissioner of Cotton and Commerce, has been good enough to point out to His Honor some papers showing that the Americans are actively prosecuting the experimental growth of jute in various parts of their country, while we are as a Government doing nothing to extend it. Of almost equal importance is the question, whether the quality of the fibre can be improved by careful preparation, and what are the best processes for its preparation. The necessities of the jute trade must have a very great influence on all our plans for roads, railways, and canals.

2. The Lieutenant-Governor proposes then to undertake a sort of jute survey with regard to—

- (1.) The present production, including the districts and tracts where it is grown; the plant or plants and varieties of plants grown for jute; the soil and situation used in each part; the mode and cost of growing; the rotation practised; the quantity produced; the effect of various climates and conditions;
- (2.) The extent to which jute cultivation has increased, and may be increased; the nature of the soils and climates in which it may grow; the degree to which soils are exhausted by it, and the degree in which they may be renewed by rotation, flooding or manure; the general prospects of the future production of the article;
- (3.) The preparation of the fibre for the market; the present modes, and the improvements that might be effected in such modes;
- (4.) The jute trade; the quantities exported from each district; the lines and modes of export; through what hands it passes, &c.;
- (5.) All other matters bearing on the subject.

3. This resolution will accordingly be circulated to all Commissioners and district officers, to whom will also be sent an explanatory memorandum showing what jute is, by what English and native names it is known, what is the character of the plant, its leaves and flowers, and what are the principal varieties recognized in commerce. Specimens of jute and of other fibres with which it may be confounded will also be circulated, so that each officer may make sure whether the fibres produced in his district are really the jute of commerce or something else. At the same time district officers are requested to get together all the particulars and specimens they can, depositing, if necessary, one of their subordinates to collect the necessary information.

4. The Lieutenant-Governor proposes to associate a European gentleman, thoroughly well acquainted with the jute trade, with an intelligent native officer, and to ask them to prepare, first, such a memorandum and specimens as have above been indicated, and then to visit some of the principal jute districts to collect, collate, and sift the information obtained by local officers, and to furnish the Government with a report on the whole subject, giving a jute survey and a jute map of these provinces, and explaining all the points above mentioned, and as many others as occur to them, so far as the information at their command enables them to do so.

ORDERED, that a copy of the above Resolution be published in the *Calcutta Gazette*, and be forwarded to all Commissioners and all district officers for information and guidance.

EDUCATION IN BENGAL.

No. 29.

*Extract from the Proceedings of the Government of India in the Home Department (Education),—
under date Fort William, the 31st January 1873.*

READ—

- Memorial of the British Indian Association, dated the 17th June 1872, against the educational measures taken by the Lieutenant-Governor of Bengal.
- Letter from the Secretary to the Government of Bengal, No. 2859, dated 14th August 1872, containing remarks thereon.
- Memorial of the Dacca People's Association, dated 4th September 1872, on the same subject.
- Letter from the Secretary to the Government of Bengal, No. 3338, dated 18th September, containing remarks thereon.
- Memorial of the Nuddea People's Association, dated 3rd June 1872.
- Letter from the Secretary to the Government of Bengal, No. 2953, dated 24th August 1872, containing remarks thereon.
- Memorial of the Rajshahye Association, dated 23rd December 1872.

RESOLUTION.

BEFORE entering upon the consideration of the questions raised in these memorials, the Governor-General in Council desires to express the satisfaction with which he has observed the interest felt in the cause of education by those classes in Bengal which are represented by the memorialists, and their appreciation of the importance of its maintenance and extension. But as it appears from the memorials themselves, as well as from expressions of opinion which have appeared elsewhere, that some misapprehension exists as to the general policy of the Government of India with regard to education, His Excellency in Council thinks it necessary to state that policy distinctly.

General Education policy laid down and continuously recognized by the Home Government.

2. The education policy of the Government of India is founded upon the despatch of the 19th of July 1854.

3. The Court of Directors then emphatically declared that the education which they desired to see extended in India was "that which has for its object the diffusion of the improved arts—science, philosophy, and literature—of Europe, in short of European knowledge."

They observed that, while a knowledge of English would always be essential to those natives of India who aspire to a high order of education, the vernacular languages of the country must be the media of the instruction of the great mass of the people. English accordingly was to be taught where a demand for it might be found to exist, but not in substitution of the vernacular languages.

Institutions for the study of the classical languages of India were to be maintained as commanding the veneration of the people, and as useful auxiliaries in the great work of education. A university was to be established, on the model of the London University, at each of the three Presidency towns. The universities were not to be themselves places of education, but were to test the value of the education given in Government and Aided Anglo-Vernacular Colleges affiliated to the universities.

The Court of Directors expressed their apprehension that circumstances had led "to too exclusive a direction of the efforts of Government towards providing the means of acquiring a very high degree of education for a small number of natives of India, drawn for the most part from what we should here call the higher classes," and pointed out that by the measures they were prepared to adopt as regards the establishment of colleges and universities, all would have been done

Paragraphs 39 to 42.

which a Government could do to place the benefits of education plainly and practically before the higher classes in India. "Our attention," they added, should now be directed to a consideration, if possible, still more important,

and one which has been hitherto, we are bound to admit, too much neglected, viz. how useful and practical knowledge, suited to every station in life, may be best conveyed to the great mass of the people, who are utterly incapable of obtaining any education worthy of the name by their own unaided efforts, and we desire to see the active measures of Government more especially directed for the future to this object."

With this object they directed that Government schools should be established as models, to be superseded gradually by schools under private management, supported by grants-in-aid, on principles of perfect religious equality. Schools, whether purely Government institutions or aided, were to be in regular gradation, from those which gave the humblest elementary instruction up to the highest colleges; and the best pupils of one grade were to rise through the other grades by means of scholarships obtained in the lower school and tenable in the higher. To provide masters, normal schools were to be established, and moderate allowances given for the support of those who possessed an aptness for teaching, and were willing to devote themselves to the profession of school-masters.

Female education was to receive cordial support. In addition to the Government and aided colleges and schools for general education, special institutions for imparting special education in law, medicine, engineering, art and agriculture, were to receive the aid and encouragement of Government. The whole system of education was to be carried out by the establishment of an Educational Department, comprising an adequate machinery for inspection, in each Presidency and Lieutenant-Governorship.

Education was to be aided and supported by the principal officials in every district, and was to receive the direct encouragement of the State, by the opening of Government appointments to those who had received a good education, irrespective of the place or manner in which it had been acquired; and in the lower situations, by preferring a man who could read and write, if equally eligible in other respects, to one who could not do so.

4. The policy which had been laid down by the Court of Directors in 1854 was confirmed, and the operation of the means prescribed by them for the accomplishment of the general objects which had been set before the Government of India was examined by Lord Stanley in his despatch of the 7th April 1859, after the direct government of India had been assumed by the crown. In that despatch the relative claims of higher and elementary education to public support were treated as follows:—

"If Government shall have undertaken the responsibility of placing within reach of the general population the means of a simple elementary education, those individuals or classes who require more than this may, as a general rule, be left to exert themselves to procure it with or without the assistance of Government."

5. In 1863* the Secretary of State (Sir Charles Wood) noticed the view which had been put forward by certain officers that Government should for the present limit "its measures to providing the means of education for the higher classes, and that the education of the lower classes should be left to be effected hereafter, when the classes above them should have not only learnt to appreciate the advantages of education for themselves, but have become desirous of extending its benefits to those below them." He pointed out that "it was one great object proposed in the despatch of the 19th July 1854 to provide for the extension to the general population of those means of obtaining an education suitable to their station in life which had heretofore been too exclusively confined to the higher classes; it is abundantly clear from Lord Stanley's despatch of 7th April 1859 that Her Majesty's Government entertained at that time the same sentiments which had been expressed by the Home authorities in 1854." He then declared that Her Majesty's Government "have no intention of sanctioning a departure from the principles already deliberately laid down."

* Despatch No. 12, dated 29th December 1863, paragraph 11.

6. The same principles were again re-affirmed in 1864,* and finally,† in

* Despatch No. 13, dated 25th April 1864, paragraph 6.

† Despatch No. 6, dated 26th May 1870, paragraph 4.

reduced with reference to the education of those who are well able to pay for themselves, and should be mainly directed to the provision of an elementary education for the

Paragraph 5.

masses of the people." His Grace, however, pointed out that, "though the policy indicated in this general statement is a sound one, it is obvious that its judicious application to our educational system in India will require a very careful regard to the

Paragraph 6.

circumstances, disposition, and degree of civilisation of the people," and he added that "those amongst whom an English system has struck the deepest root, though generally of the literary or higher castes, can by no means be described as belonging to the wealthier classes of society." His Grace also observed that the foundation for the general system of education, which it was the desire of the Government to establish, was to be laid by instilling "into the real upper classes of India the conviction now entertained, but not entertained till very lately by every enlightened man in

Paragraph 9.

England, that one of the main duties of society is to provide for the sound primary instruction of the humbler classes."

7. With regard to the particular recommendations then made by the

Paragraph 11.

Government of India, the Duke of Argyll agreed that it was inexpedient "that Government colleges should be maintained in actual competition." He, however, pointed out the distinction between colleges in competition and those in co-operation, the test prescribed being that "two colleges should not be maintained when the students now distributed between the two could without difficulty be educated in one, and when that one is easily accessible to all seeking instruction."

The reduction of the State expenditure on colleges in Bengal "to an equality with the sum total of the endowments and

Paragraph 12.

foes of the colleges" was regarded as "a proper object for attainment," but "one to which the approach should be made with caution."

With these expressions of the views of the Home Government, the Secretary of State left the subject to the administration of the Governor-General in Council.

Paragraphs 17 and 18.

8. A few months later, in transmitting to the Secretary of State a memorial from the inhabitants of Lower Bengal against

Intention of discouraging spread of English education disclaimed by Government of India in 1870.

* Despatch No. 11, 25th October 1870.

the discouragement of English education, the Government of India* took occasion to "repudiate in the strongest terms any intention whatever to discourage the spread of the English language and the teaching of that language in the schools of Lower Bengal. What we have discouraged," they said, "is the expenditure of the comparatively small funds available from imperial revenues on that one object, nearly to the exclusion of all other kinds of education from the advantage of aid from this source."

9. Applying the general policy laid down in 1854 (which has been continuously recognized and frequently re-affirmed)

Application of the prescribed principles to present state of education in Bengal.

to the present state of education in Bengal, and having fully considered the despatches from the Secretary of State, which deal especially with that subject, the Governor-General in Council is of opinion that he is correctly interpreting the policy of Her Majesty's Government by declaring that it is right in principle to diminish to some extent the funds now applied to the higher English education, and to devote more funds to the improvement and extension of primary education; but that the change should be made with caution, and so as not to

involve the risk of checking the present popularity and success of the institutions, whether Government or aided, which provide for higher English education in Bengal.

10. In dealing with the memorials now under consideration, it is necessary at the outset to remember that the system of Provincial Service Assignments, inaugurated by the resolution of the Government of India of the 14th of December 1870, allows to the Local Governments full liberty in the expenditure of the funds appropriated to Provincial Services, "subject to certain restrictions," and that the responsibility for the administration of those services was to a large extent transferred, along with the financial control over them, from the Government of India to the Local Governments. The restrictions as regards education were laid down as follows :

Paragraph 27.

Authority delegated to Local Governments by scheme of Provincial Service Assignments.

Resolution of the 14th December 1870, paragraph 26.

"No law exists upon the subject of education, but the policy of the Government has been declared and prescribed in despatches from the Secretary of State, the authority of which and of the rules sanctioned by the Government of India regarding 'grants-in-aid' and other matters of general principle is not affected by this resolution."

In accordance with the spirit of the resolution, the Governor-General in Council desires to look at the educational measures of the Government of Bengal rather with reference to the broad line of policy which is being followed, than to administrative details.

11. The British Indian Association, the Nuddea People's Association, and the Rajshahye Association, have stated several objections to those measures, and it is alleged that the policy of the Bengal Government "has produced a deep feeling of alarm, distrust, and despondency, from one end of the country to the other."

Memorial of British Indian Association.

12. The Governor-General in Council has carefully considered how far the measures complained of justify the use of such strong terms, and whether they are opposed to the policy laid down by Her Majesty's Government.

Measures taken by the Government of Bengal.

13. The reductions and changes which have been effected are briefly as follows:—

1st, The establishments of the Berhampore, Kishnagur, and Sanskrit Colleges, have been reduced by abolishing the third and fourth years' college classes, the teaching in those colleges being now limited to the standard of the First Arts Examination at the Calcutta University;

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2nd, 20,000 rupees out of the money thus saved have been assigned to instruction in the physical sciences, surveying, drawing, &c., in schools and colleges; education in these sciences has been encouraged by allotting to them about one-fourth of the 40 senior scholarships hitherto assigned to literature, and by similar arrangements with regard to junior, minor, and vernacular scholarships; and a department has been established in the Hooghly and Patna Colleges for the purpose of training candidates for the Civil Service of Government;

3rd, In the Sanskrit College a separate Professor for Hindoo Law is no longer entertained, but the office of lecturing is made over to one of the other Professors. The study of Sanskrit in Government schools has been made optional, instead of compulsory; the teaching of it to any boy who is below the third class is prohibited; and it is not allowed to be taught in a school unless ten boys wish to learn it.

14. Objection is taken to the alterations which have been made in the Berhampore, Kishnagur, and Sanskrit Colleges, on the ground that they are opposed to the education despatch of 1854, and the following passage from

Objection of memorialists that reduction of colleges is opposed to the intentions of Home Government.

that despatch is quoted in support of the objection: "The candidates for university degrees will, as we have already explained, be supplied by colleges affiliated to the universities. These will comprise all such institutions as are capable of supplying a sufficiently high order of instruction in the different branches of art and science in which university degrees will be accorded. The Hindu, Hooghly, Dacca, Kishnagur, and Berhampore Government Anglo-Vernacular Colleges, the Sanskrit College, the Mahomedan Madrassas, and the Medical College in Bengal * * * will at once supply a considerable number of educational establishments worthy of being affiliated to the universities, and of occupying the highest place in the scale of general instruction." It is urged that the obvious inference is that those colleges should be maintained intact for the purpose of supplying candidates for university degrees, and that the reduction of the course of study in any college to the First Arts standard only (which is the second university examination, but does not confer a degree) is opposed to the terms of the despatch.

The opinion expressed by the Duke of Argyll in May 1870, that a college should not be suppressed which is in 'co-operation' rather than in 'competition' with another—that is to say, that a college should not be suppressed unless the students now distributed between the two can, without difficulty, be educated in one of them, that one being easily accessible to all seeking instruction—is brought forward as also condemning the reductions that have been made in the Berhampore, Kishnagur, and Sanskrit Colleges.

It is alleged that the limitation of the educational course in those colleges to the standard of the First Arts Examination, coupled with the alterations made with respect to the study of Sanskrit in Government schools, will have a tendency to reduce the standard of education by rendering it difficult for mofussil students to study up to the First Arts Examination, in which a classical language (practically speaking Sanskrit in Bengal), in addition to English, is required by the university scheme.

Apprehension is expressed lest it should be the intention of the Government to concentrate all higher education in the Presidency College at Calcutta.

Lastly, an endeavour is made to show that "the claims of the" masses to education are not neglected, and that the policy of retrenching the charge for high education, with a view to further it, is uncalled for."

15. His Excellency in Council does not consider that to reduce in the Kishnagur, Berhampore, and Sanskrit Colleges, the two classes which provide for the education of students, who, after passing the First Arts Examination, wish to proceed to the B. A. and Honor Examinations at the Calcutta University, is contrary to the principles of the despatch of 1854, or to the instructions given by the Secretary of State in May 1870.

The despatch of 1854, so far from declaring that all Anglo-Vernacular Colleges should be maintained intact, urged upon the Government of India the expediency, under certain circumstances, of reducing the number of those colleges. The change that has been made in the educational course of the colleges that have now been dealt with by the Government of Bengal, does not involve the suppression of any college, but is simply an arrangement under which the limited number of students who formerly composed the classes for the B. A. and Honor Examinations in the Kishnagur, Berhampore, and Sanskrit Colleges, will continue their studies either at the Hooghly or Presidency Colleges. Kishnagur and Berhampore are within easy distance of Hooghly and Calcutta, and the Sanskrit College is actually under the same roof with the Presidency College at Calcutta: His Excellency therefore considers that the change comes within the conditions laid down by the Secretary of State as to the necessity of the means of education being easily accessible to the students.

16. While His Excellency in Council does not desire in any way to discourage the voluntary study of Sanskrit and the other classical languages of India, he agrees with the Lieutenant-Governor that it is inexpedient to make the study of Sanskrit compulsory in Government schools. With every consideration for the opinions of those who attach a high importance to the

Objection as to changes with regard to study of Sanskrit in schools.

Sanskrit language, His Excellency does not consider that the standard of education in India mainly depends upon the degree of proficiency which the students may attain in the classical languages of the East. Upon this subject His Excellency in Council desires to express his complete adherence to the sentiments contained in the education despatch of 1854, which have already been quoted in this resolution, to the effect that the educational efforts of Government should be directed to the diffusion of European knowledge, and that the classical languages of India cannot be looked to as the principal means of securing that object, but only as useful auxiliaries to the education which is obtained through a knowledge of the English language and disseminated to the people through the vernacular languages of the country.

With regard to the restriction of the study of Sanskrit in Government schools, the Governor-General in Council observes that since the memorial was drawn up, the Lieutenant-Governor has extended the option of beginning the study of this language to the third class, so that students will have three years in which to qualify before presenting themselves for the First Arts Examination. His Honor will, without doubt, watch the results of the change, in order that the opportunities given for the study shall be such as fully to meet the requirements of the university standard.

17. His Excellency in Council does not think that there is any good ground for the apprehension that all high education in Bengal will be concentrated at the Presidency College, for four Government colleges, teaching up to the highest standards, will remain intact: the Presidency and Hooghly Colleges to serve Central and West Bengal, the Dacca College for East Bengal, and the Patna College for Behar.

18. If His Excellency in Council is to understand any of the memorialists to be of opinion that the need for the extension and improvement of primary education among the masses of the people in Bengal is not urgent, and does not require the application to that purpose of all savings that may properly be made in the cost of higher education, His Excellency must express his dissent from that opinion, and his cordial concurrence with the declaration made by the Lieutenant-Governor of Bengal in reviewing the Director of Public Instruction's Report for 1870-71,* "that it is the policy of the Supreme Government and of the Bengal Government to promote and foster all sound education; but it is the wish of both Governments that out of the public money available for educational purposes a larger share than heretofore should be given to the support of elementary education in the villages of Bengal."

19. His Excellency in Council trusts that the memorialists will rest assured that there is no desire on the part of the Government to depreciate the importance, or to discourage the cultivation, of high English education in Bengal. His Excellency has observed with satisfaction the great progress that has been made of late years in the general knowledge of the English language, as well as the complete command of English which has been acquired by many members of the Calcutta University, whose literary works are deserving of high praise. These results are cordially and heartily recognised by His Excellency in Council: they prove that remarkable success has attended the measures which have been adopted during the last twenty years by the scholars and statesmen who have directed the course of education; and they show that the future success of English education in Bengal is established beyond the risk of failure by the firm hold which it has acquired upon the people.

20. In concluding this review of the objections that have been made to certain educational measures recently adopted by the Government of Bengal, His Excellency in Council desires to express his deliberate opinion that in these measures the Lieutenant-Governor has not departed from the broad line of educational policy which has been laid down by Her Majesty's Government during a long series of years; and he desires, in addition, to express his cordial approval of the

Objection as to concentration of high education at Presidency.

Objection that primary education is already sufficiently cared for.

* Paragraph 3 of Resolution.

Approval of measures adopted by the Lieutenant-Governor.

steps which His Honor has taken to give more practical turn to education in Bengal, as well as his gratification at the advance which has been made in the encouragement of the primary instruction of the people. His Excellency is confident that the Lieutenant-Governor will be sensible of the importance of carefully watching the practical effect of these measures and of the changes recently introduced. The readiness with which His Honor has modified the views which he at first entertained, regarding the alterations in the constitution of the Sanskrit and Patna Colleges, and the period during which the study of Sanskrit should be allowed in schools, is a sufficient guarantee of His Honor's willingness to give full consideration to all reasonable representations, and to act upon such of them as may be well founded.

21. His Excellency in Council desires that a copy of this resolution be forwarded to the British Indian Association, the Nuddea People's Association, and the Rajshahye Association. The memorial of the Dacca People's Association refers almost entirely to the proposed reduction of the college classes in the Patna College, which, upon further consideration, the Government of Bengal have decided not to carry into effect.

ORDER.—Ordered that copy of this Resolution be forwarded to the Government of Bengal with reference to its communications referred to above, and with a request that copies may be furnished to the British Indian Association, the Dacca People's Association, the Nuddea People's Association, and the Rajshahye Association, in reply to their memorials.

Ordered that copies be also forwarded to all other Governments and administrations for their information.

No. 2859, dated Calcutta, the 14th August 1872.

From—C. BERNARD, Esq., Offg. Secretary to the Government of Bengal, Genl. Dept.,

To—The Secretary to the Government of India in the Home Department.

I AM directed to submit a memorial* addressed to His Excellency the Governor-General in Council by the British Indian Association, relating to certain recent educational

* Dated the 17th June 1872.

measures of this Government, and to submit at the same time the following remarks of the Lieutenant-Governor on the subject.

2. In paragraph 4 of the petition, the memorialists dwell on the Lieutenant-Governor's having said that it was his earnest wish to find the means of doing justice to the more numerous classes in regard to education, without withdrawing the means hitherto given to higher education. On this point I am to observe that though the Lieutenant-Governor has hardly yet found the means of attaining the former object, yet, as a matter of fact, the money devoted to higher education has not been at all diminished.

3. Again, in paragraph 13, the memorialists assert "it is at once evident that the claims of the masses to education are not neglected." With reference to this, the Lieutenant-Governor desires me to say that, unhappily, the results obtained by the late census proceedings, and by some special census undertakings for the purpose of ascertaining the state of education more precisely in limited specimen areas, have been to show the educational destitution of the masses to be even greater than the Government had supposed. Except in Orissa and some of the western districts of Bengal, which are a shade better than those in the centre and the east, there seems to be an appalling educational destitution. In that respect, therefore, the statements of the British Indian Association are not only not justified by facts, but are entirely at variance with the facts.

4. These general statements apart, the petition is mainly an appeal against the reduction of certain of the colleges for general education. In order to explain this matter, it will be necessary to detail certain facts, especially with regard to the actual cost to Government of education in our colleges.

5. The Hooghly College is entirely supported by a great Mahomedan endowment, and is therefore not included in the following statement. A detailed statement is annexed, showing the cost to Government of the several Government colleges, the number of students, and the annual cost to Government per head, as the establishments stood at end of last year. The result is, that the average annual cost to the state of each student is Rs. 435 paid by Government, besides expenditure from fees, endowments, &c. This average cost is by no means equally divided, varying from Rs. 328 in the Presidency College to Rs. 759 in the Sanskrit College, and Rs. 844 in the Berhampore College. The figures are exclusive of the cost of building and maintaining the college buildings, those charges being included in the budget of the Department of Public Works. If they were taken into account, it will be found that the real cost to the state is considerably greater than the sums stated.

6. Again, the cost is not equally divided among the students in different classes. There were four classes in each college, with four professors, principally highly paid European scholars. The first two classes are taught up to the First Arts standard of the University, the other two are taught up to the Bachelor of Arts standard, while some are carried on for honors and the M.A. degree. In all the colleges, except the Presidency College, the first two classes are by far the most numerously attended. After the First Arts examination some students enter special colleges or professions, and some go to the Presidency College to obtain the greater advantages there afforded in the higher classes.

7. The highest and most expensive teaching power is usually given to the highest classes; but to obtain the cost of the two higher classes, half the total cost of each college has been taken, including in this the extra or honor classes. Dividing this cost by the number of students, the following result is obtained as the annual cost to Government of each student in each of the higher classes:—

	Rs.
Dacca College	765
Kishnagur College	1,076
Berhampore „	3,446
Patna „	1,313
Sanskrit „	1,000

About half of the students succeed in obtaining the B. A. degree, so that taking the education of two students for two years for each B. A., we must multiply the above figures by four to get the cost to Government of each B. A.

8. It was further found that the cost of the colleges was increasing, mainly owing to the system on which professors are engaged, not only rising from one grade to another, but also rising in salary within each grade according to length of service. Notwithstanding the most stringent orders for economy, the budget demand of the Director of Public Instruction for the expenses of the colleges was increasing from year to year, and that for the year 1872 very considerably exceeded the grant for 1871.

9. Another important consideration was this:—Heretofore general education and degrees have been entirely confined to the strictest scholastic subjects, literature, philosophy, and mathematics—science has been entirely ignored. Before the present Lieutenant-Governor's action, a strong movement in favor of science had been made in the University, and the Lieutenant-Governor was much in favor of putting liberal education on a wider basis. The University, though not accepting in full the recommendations of their committee, have accepted a partial reform, establishing an alternative standard into which science enters to a considerable extent; and the Lieutenant-Governor was anxious on his part to supply the means of educating to this standard. But an alternative course involving new subjects involved also new professors and more money.

10. . . Altogether it was evident that the position was such that our requirements could not be met without a largely increased expenditure, unless some very radical economy were effected somewhere. On full consideration the plan

which the Lieutenant-Governor found to be most feasible, was to reduce the number of colleges educating up to the highest point, concentrating in the remainder improved means of the highest education. The reduced colleges were not abolished, but were still efficiently maintained to teach up to the point to which experience proved that the greatest demand existed, that is up to the First Arts standard.

11. I am now to come to the details of these reductions. As regards the Sanskrit College, it may be explained that it is a small college, containing last year twenty-nine, and this year at the time of the reductions twenty-three students, most of whom are in some sense bribed to go there by special scholarships. It is actually under the same roof as the Presidency College, and its maintenance as a separate English college was quite contrary to all rule. The truth is that the Sanskrit College was an institution designed to keep up Sanskrit learning; but in Calcutta there is so little desire for real oriental learning, and so much desire for the English, that leads to employment and profit, that it was not possible to keep together a Sanskrit College without giving the students the benefit of an English course as well. Consequently the First Arts, and latterly the full B. A. course, was introduced into the college, and separate professors were appointed to teach these subjects. The number of students above quoted show that the system had not been very successful, while the number of professors, seven to twenty-three students, was out of all proportion. In deference to the wishes of many native gentlemen, the Lieutenant-Governor has consented to let the First Arts course remain for the present; but it was generally admitted that the maintenance of the two higher classes could not be justified. They have consequently been reduced; but arrangements have been made to enable the students to attend the classes of the Presidency College, so that there is no real and substantial reduction in the means of education.

12. The first real reduction was in the Berhampore College. It will be seen that in this college each student cost Government Rs. 844, say £84 per annum, and that taking the higher classes only, each student cost Rs. 3,446, say £344 per annum, while each B. A. cost about £1,400. It was also evident from the figures that the number of students was not increasing but decreasing, and at the last examination not a single student had taken the B. A. degree. This then appeared to the Lieutenant-Governor an evident case for reduction; the two higher classes were accordingly reduced, and the college now teaches up to the First Arts course.

13. The case of the Kishnagur College was not so evident, but it is within little more than 30 miles as the crow flies from the Hooghly College. There is very easy and cheap communication between the two places, by tidal river and by rail, and it seemed to the Lieutenant-Governor very doubtful whether he would be justified in maintaining both colleges on an equal footing. On looking into the matter His Honor found that the attendance at Kishnagur was very irregular, so much so that there was but a single student in one of the upper classes. It appeared also that most of the students were not resident, and that they very freely migrated from one college to another. The following extract from a demi-official letter from the Principal of this institution, which decided the Lieutenant-Governor to reduce the classes sooner than he had otherwise intended, will show the position of the students, and explain why the reduction was effected with little hardship or serious complaint, very liberal terms having been conceded to the transferred students. "My experience would lead me to the conclusion that our students hang so loosely on the skirts of Hindoo society, that it matters little to them where they may pursue their studies within a certain area. Very few reside permanently in Kishnagur, and those who do not, can live at Hooghly, for example, quite as easily as they can here. Even boys in the school live in a town like Kishnagur, according to their own account, without any recognized guardian or protector. This kind of early social emancipation appears to me to be one of the most glaring evils of our educational system here; but as it exists, I think that in a case like this transfer which is now taking place, it might be recognized and taken advantage of."

On the other hand, the Hooghly College is the most flourishing and useful out of Calcutta. It had long been the subject of complaint that a purely Mahomedan endowment was principally devoted to the education of Hindoo boys, without any contribution from Government. The Lieutenant-Governor therefore determined to reduce the Kishnagur College to the First Arts course, and to devote the money saved to the Hooghly College in such a way that, while additional advantages were given to Mahomedan students, the benefits to Hindoo and other students might be justified by a contribution on the part of Government, and a saving of the endowment income might be effected and devoted to Mahomedan education elsewhere.

14. The Lieutenant-Governor's plan then stood as follows as regards colleges carrying general education to the highest point tested by the university.

For Central and West Bengal.

The Presidency and Hooghly Colleges, supplemented by several aided colleges.

For East Bengal.

The Dacca College.

For Behar.

The Patna College.

Subsequently, His Honor found that the students who took advantage of the highest education at the Patna College were almost all Bengalees and not natives of the country; and seeing how little English has taken root in Behar, it occurred to the Lieutenant-Governor that it might be more advantageous to spend the money in diffusing more widely an English education somewhat less advanced, and providing the means of technical instruction, rather than on keeping up higher classes for which the natives of the country were not prepared. This gave rise to the issue of the letter of which a copy is annexed, but the reports have not yet been received, and the matter is not yet decided.

No. 1057 of the 21st March 1872.

Statement showing the cost to Government of the several Government Colleges for the year 1872-73 according to the Budget Estimate for the year.

Colleges.	Monthly average attendance.	Cost to Government.	Cost per head.
		Rs.	Rs.
Presidency College ...	381 students ...	1,25,192	328
Sanskrit „ ...	29 „ ...	22,009	759
Dacca „ ...	103 „ ...	42,886	416
Kishnagur „ ...	113 „ ...	43,041	381
Berhampore „ ...	49 „ ...	41,371	844
Patna „ ...	64 „ ...	47,285	738
Total ...	739	3,21,784	435

DETAILS OF EXPENDITURE OF EACH COLLEGE.

[Note.—The cost of each college as shown below is taken from the estimates of the year 1872-73, appended to the Director of Public Instruction's letter No. 334, dated 1st February 1872, except that no deduction is made for college appointments reduced during the last year. Where any reduction has been made in the estimates of the current year, the figures of the year 1871-72 have been taken for the purpose of the following tables. The average attendance of scholars and the figures for fees and endowments are taken from page 10 of the Director's Annual Report for the year 1870-71; the scholarship figures are taken from pages 9-11 of the same report.]

I.—Presidency College.

		Rs.	Rs.
Principal ...	...	...	18,000
1 Professor ...	...	15,000	
1 „ ...	...	12,700	
1 „ ...	...	12,000	
1 „ ...	...	9,550	
1 „ ...	...	9,000	
			58,250
Carried over ...	...		76,250

	Rs.	Rs.
Brought forward	.. .. .	76,250
1 Assistant Professor	.. .. . 8,950	
1 " "	.. .. . 8,550	
1 " "	.. .. . 8,200	
	<u> </u>	25,700
1 Professor, Sanskrit	.. .. . 3,600	
1 Assistant Professor	.. .. . 2,400	
	<u> </u>	6,000
1 Pundit	.. .. . 600	
1 Moulvie	.. .. . 600	
1 Assistant Lecturer	.. .. . 2,400	
	<u> </u>	3,600
		<u> </u>
		1,11,550
Office establishment	.. .. . 7,176	
Library allowance	.. .. . 3,600	
House-rent	.. .. . 1,440	
Contingent allowance	.. .. . 1,950	
Ditto Chemicals	.. .. . 300	
	<u> </u>	14,466
		<u> </u>
		1,26,016
Share of junior scholarships	.. .. . 17,088*	
Ditto senior	.. .. . 14,088*	
15 per cent. on salaries (Rs. 1,11,550) for leave, allowances, and pensions, &c.	.. .. . 16,732	
	<u> </u>	
Total cost	.. .. . 1,73,924	
	<u> </u>	
Of which from fees, &c., in 1870-71	.. .. . 48,732	
Ditto from imperial funds	.. .. . 1,25,192	
Average number of students 381; therefore total cost per annum of each student	.. .. . 456	
Of which from fees, &c.	.. .. . 128	
Ditto from imperial funds	.. .. . 328	
II.—Sanskrit College.		
Principal	.. .. . 3,600 0 0	
4 Professors	.. .. . 7,200 0 0	
2 Assistant Professors	.. .. . 3,600 0 0	
	<u> </u>	14,400 0 0
Half cost of librarian, writer, &c.	.. .. . 1,516 8 0	
Scholarship, Sanskrit	.. .. . 4,032 0 0	
Share of scholarships, junior	.. .. . 1,056 0 0*	
Ditto of " senior	.. .. . 600 0 0*	
15 per cent. on salaries (Rs. 14,400) for leave, allowances, and pensions	.. .. . 2,160 0 0	
	<u> </u>	
Total cost	.. .. . 23,764 8 0	
	<u> </u>	
Of which from fees (1870-71)	.. .. . 1,755 0 0	
Do. do. imperial funds	.. .. . 22,009 8 0	
Average number of students 29; total cost per annum of each student	.. .. . 819 0 0	
Of which from fees and endowments	.. .. . 60 0 0	
Do. do. imperial funds	.. .. . 759 0 0	
III.—Dacca College.		
Principal	.. .. . 15,000	
1 Professor	.. .. . 7,800	
1 " "	.. .. . 7,200	
1 Assistant Professor	.. .. . 4,800	
1 Sanskrit Ditto	.. .. . 1,800	
	<u> </u>	36,600
Half cost of miscellaneous expenses	.. .. . 1,512	
Share of scholarships, junior	.. .. . 4,272*	
Do. of " senior	.. .. . 1,728*	
15 per cent. on salaries (Rs. 36,600) for leave, allowances, and pensions, &c.	.. .. . 5,490*	
	<u> </u>	49,602

* These sums are calculated by assuming that in 1870-71 the college took an average number of scholarships in all grades.

	Rs.	Rs.	Rs.
Of which from fees and endowments (1870-71)	6,716		
Do. do. imperial funds ...	42,886	*	
Average attendance of students 103; total cost per annum of each student	481		
Of which from fees and endowments	65		
Do. do. imperial funds ...	416		
IV.— <i>Kishnaghur College.</i>			
Principal ...	12,000		
1 Professor ..	9,000		
1 Ditto ..	7,300		
1 Assistant Professor ..	4,800		
1 Sanskrit ditto ..	1,800		
		34,900	
Half cost of miscellaneous expenses ..		2,154	
Share of junior scholarships ..		5,664	
Ditto senior ..		1,728	
15 per cent. on salaries (Rs. 34,900) for leave, allowances, and pensions ..		5,235	
Total cost ..		49,681	
Of which from fees and endowments (1870-71) ..	6,640		
Do. do. imperial funds ..	43,041		
Average attendance of students ..	118		
Total cost per annum of each student ..	440		
Of which from fees and endowments ...	59		
Do. do. imperial funds ..	381		
V.— <i>Berkampore College.</i>			
Principal ...	12,000		
1 Professor ..	9,000		
1 Ditto ..	8,100		
1 Assistant Professor ..	4,800		
1 Sanskrit ditto ...	1,800		
		36,000	
Half cost of miscellaneous expenses ..		1,992	
Share of junior scholarships ..		240	
Ditto senior ..		768	
15 per cent. on salaries (Rs. 36,000) for leave, allowances, and pensions ...		5,400	
Total cost ...		41,400	
Of which from fees and endowments (1870-71) ...	3,029		
Do. do. imperial funds ...	41,371		
Average attendance of students ...	49		
Cost per annum of each student ...	906		
Of which from fees and endowments ..	62		
Do. do. imperial funds ..	844		
VI.— <i>Patna College.</i>			
Principal ...	12,000		
1 Professor ...	9,000		
1 Ditto ...	8,385		
1 Assistant Professor ...	4,800		
1 Sanskrit Ditto ...	1,800		
6 Arabic Ditto ...	1,560		
		37,545	
Half cost of miscellaneous expenses ...		1,170	
Share of junior scholarships ...		4,512	
Ditto senior ..		2,548	
15 per cent. on salaries (Rs. 33,745) for leave, allowances, and pensions ...		5,631	
Total cost ...		51,306	
Of which from fees and endowments (1870-71) ...	4,021		
Do. do. imperial funds ...	47,285		
Average attendance of students ...	64		
Total cost per annum of each student ...	801		
Of which from fees and endowments ...	63		
Do. do. imperial funds ...	738		

No. 3338, dated Calcutta, the 18th September 1872.

From—J. WARE EDGAR, Esq., Offg. Junior Secy. to the Govt. of Bengal,
To—The Secretary to the Government of India in the Home Department.

WITH reference to this office letter No. 2859, dated 14th August 1872, containing the views of the Lieutenant-Governor on the memorial presented by the British Indian Association on the subject of education in Bengal, I am directed to submit a memorial addressed to His Excellency the Governor-General by the Dacca People's Association, complaining against the proceedings of this Government in connection with high education.

2. I am to add that, after consulting the local authorities and visiting Patna, and hearing what the people's views are, the Lieutenant-Governor proposes at present to retain the III and IV year classes of the Patna college.

3. His Honor, however, wishes in some colleges gradually to reduce the cost of the higher classes by employing native professors for some of the college classes. If this can be done, the money so saved will be devoted to science and art classes at those colleges, the early establishment of which the Lieutenant-Governor has very much at heart.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 1st February 1873.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BURDWAN DIVN.	1 Burdwan	Feb. 4th*	Nil.	Cool	Prospects of winter cereals and sugarcane good. Grain market same as before.	Fever moderating.
	2 Bancoorah	" 1st	Nil.	Dry and cold	The rubee crops are progressing well. The sugarcane is being cut.	
	3 Beerbhoom	" 1st	Nil.	Dry and clear, still cool, but warmer than it was.	The winter crops generally promise well, but would be the better for rain. The rice crop has been harvested.	
	4 Midnapore	" 1st	Nil.	Clear and cold	Prospects fair.	
	5 Hooghly	" 1st	Nil.	Fair; cool in the morning. North wind.	Winter crops good. Some of the crops have been cut.	
	Howrah	" 1st	Nil.	No rain; weather clear.	What remains of the amun crop still uncut is good. Cutting of the sugarcane continues.	
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 24-Pergunnahs	" 4th	Nil.	Fine and seasonable.	Gathering of amun paddy is over except on marshy lands, and that of mustard has fairly commenced. Other cold weather crops are doing well.	General health of the district is generally good, except in the Baraset sub-division, where cholera is prevalent in a sporadic form.
	7 Nuddea	" 1st	Nil.	Seasonable	Generally favourable.	
	8 Jessore	" 1st	Nil.	Cold	For most part good; in Jenida pokur insect has done damage, but not much.	
RAJSHAHYE DIVISION.	9 Moorshedabad	" 1st	Nil.	Fair and cool and seasonable with fresh breeze at times from the south-west.	Prospect of the crop is favourable. The standing crops are reported as being much in want of rain.	Cholera is very bad in the south-western portion of the district, and there is small-pox in Berhampore.
	10 Dinageporo	" 1st	Nil.	Fine generally, cloudy, and threatening rain at times, but none has fallen; unusually warm.	The rice crop has all been cut and housed, and so are the principal cold weather crops; all fair.	
	11 Maldah	" 1st	Nil.	Dry; rather warm towards end; the last day cloudy; a perceptible change in the weather—maximum heat 73°, minimum heat 62°. Barometer—maximum 29.750, minimum 29.600. Strong westerly wind.	Kalai and serso reaped; 14-anna crop expected; other standing crops doing well.	
	12 Rajshahye	" 1st	Nil.	No rain; the weather was fine and cool.	The amun and ropa crops have been harvested. Rubee crops are daily flourishing; oil seeds not good. Mulberry is in good condition. Indigo is also good. Arahar is being cut.	
	13 Rungpore	" 1st	Nil.	Mild without fogs	Favourable.	
14 Bograh	" 1st	Nil.	Fine	The reaping of the amun crop is finished. The minor crops continue to promise well.		
15 Pubna	" 1st	Nil.	Clear and dry	All the cold weather crops are doing favourably.		

* Telegram of the 4th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>						
		1873.				
COOCH BEHAR DIVN.	16 Darjeeling	Feb. 1st	Nil.	Alternate mist and sunshine; very cold and windy.	Progressing favourably.	
	17 Julpigoree Cooch Behar	" 1st	Nil.	Much warmer.	Promising well.	
		" 1st	Nil.	Fine generally; foggy in the morning.	Sowing of cheena is going on and ploughing for early rice crop; tobacco continues to promise well. Mustard seed will not probably be a very full crop.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	" 4th*	Nil.	Slight rain in the north of the district; looks like rain now.	Prospects of crops fair; rain will do much good.	
	19 Furreedporo	" 1st	Nil.	Weather dry and moderately cold.	The rubee crop is suffering from the continued want of rain. The manufacture of molasses and sugar from date and sugarcane is being carried on actively, the present dry weather being most favourable for their production.	
	20 Backergunge	" 1st	Nil.	Cold and fair	Good. Harvest nearly completed.	
	21 Mymensing	Jan. 25th	Nil.	Fair	The crops continue to look well.	Cholera is disappearing. Small-pox is still raging.
	22 Sylhet	" 25th	0.15	Not so cold as last week.	Half of the boro dhan is sown.	
	23 Cachar	" 25th	Nil.	Fair and cool	No crops on the ground.	Cholera in a sporadic form about the district, but not exceptionally severe.
	24 Chittagong	" 25th	.12	Unseasonably warm at first. On Sunday night a little rain fell, since which it has been cooler, with wind generally from the north.	A little paddy remains to be cut in the south of the district. Cold weather crops reported to be doing well. The rain that fell appears to have done them good. Straw cheap and plentiful in the market.	
	25 Noakhally	" 25th	.01	Weather during the first two days of the week was foul. Cloudy sky with few drops of rain. Fair weather during the succeeding days, with high northerly breeze at noon.	Cold weather crops progressing favourably.	
	26 Tipperah	Feb. 1st	Nil.	Fine and pleasant, but it has been perceptibly hotter during this week.	No change to report; cold weather crops satisfactory everywhere.	Cholera has almost disappeared.
	27 Chittagong Hill Tracts	.....	.....	.....	.....	Return not received.
	Hill Tipperah	Jan. 25th	.29	Some rain on the 19th; the remainder of the week clear and cool.	The rain of the 19th is said to have done some good to the crops on the ground, as also to cultivation in general.	
BEHAR.						
PATNA DIVN.	28 Patna	Feb. 4th*	Nil.	Weather seasonable.	The rubee crops have thriven well. Mustard is being reaped.	Health of the district good
	29 Gya	" 1st	A few drops of rain on 31st January.	Dry, but cloudy. The weather is warmer.	Rubee crop is satisfactory, and the poppy crop is in flower in some places, and the cold weather crops are fair. Jehanabad report not received.	

* Telegram of the 4th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.—(Contd.)		1873.				
FAINA DIVN.—(Contd.)	30 Shahabad	... Feb. 1st	Nil.	Cloudy during the end of the week; a slight fall of rain on the night of the 31st January.	Crops on the ground are doing well.	
	31 Tirhoot	... .. 1st	A little drizzling rain.	Cold and seasonable. Cloudy on the night of the 31st January.	The prospects of the rubee crops continue promising. Favorable reports have been received from all sub-divisions. Poppy is unsatisfactory, and more moisture still needed for indigo.	
	32 Sarun	.. .. 1st	Nil.	Cold and clear, but cloudy and damp, with drizzling rain, on Friday.	The rubee crops are fair on the whole, though poor in parts.	
BHAUGULPORE DIVN.	33 Chumparun	... .. 1st	Nil.	Cold. West winds ...	The rubee crops continue promising. No change since last week.	
	34 Monghyr	.. .. 1st	Nil.	Very fine. No rain...	The crops are very good and promise well.	
	35 Bhaugulpore	... .. 4th	Nil.	Strong west winds ...	Rubee crops still very good. Rain would be of great benefit in most parts of the district.	General health good. Fever died out in the north, but small-pox is bad in three or four places in the south.
	36 Purneah	... .. 1st	Nil.	Cloudy and threatening rain.	Tori is now being reaped; the rubee crop on the whole is promising, but rain is wanted.	Fever is still prevalent. A little small-pox reported from south of district.
	37 Southal Pergunnahs...	.. .. 1st	Nil.	Fine, but getting warm	No alteration since last report.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	... .. 4th*	Nil.	Weather cool ...	Crops flourishing.	
	39 Pooree	... Jan. 25th	Nil.	Seasonable ...	Crops doing well.	
	40 Balasore	.. Feb. 1st	Nil.	Unsettled and warm ..	Spring crops progressing well.	
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
	41 Hazareebaugh	... .. 1st	Nil.	Bright and cold during the early part of the week, but cloudy and threatening rain the last two days.	The little rain formerly reported has been beneficial, and the crops are now very promising.	Small pox continues to be reported from various localities.
	42 Loharduggah	... .. 1st	Nil.	Bright and cold ...	There has been a little rain in the district, but more is wanted to ensure good crops. The reports from Palamow show that a fair rubee crop is expected.	Small-pox still prevalent at Ranchee.
	43 Singbhoom	.. Jan. 25th	0.19	Seasonable ...	Favourable.	
	44 Maunbhoom	... Feb. 1st	Nil.	Fair	The rubee crops on the ground are all doing well and promise good outturn.	
ASSAM AND ADJACENT HILLS.						
	45 Goalparah	... Jan. 25th	Nil.	Fair and cold; mornings foggy generally.	Mustard is in a somewhat backward state owing to want of rain. No particular change in the prospect of other crops.	
	46 Kamroop	... Feb. 3rd†	Nil.	There was a perceptible rise in the temperature this week; the fogs in the early mornings were not so dense as usual.	Mustard seed is being gathered and sugarcane being cut; pulse promises well.	Public health good.

* Telegram of the 4th February received on the same day.

† Telegram of the 3rd February received on the 4th.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ASSAM AND ADJACENT HILLS.—(Contd.)		1873.				
47	Durrung	Jan. 25th	Nil.	Heavy dews and fogs in the mornings. North-east breeze prevailing.	Dhan all reaped, a full crop. Sugarcane, mustard, and other crops flourishing.	
48	Nowgong	„ 25th	Nil.	Clear, cold and seasonable.	Mustard, kalai, and sugarcane crops promise to be abundant. Pruning of bushes on tea estates being carried on.	
49	Seebaugor	„ 25th	Nil.	Weather cold; morning foggy and evening clear; no rain.	Satisfactory	Cholera decreasing.
50	Luckimpore	„ 25th	0.02	Weather unusually cold; foggy morning with cloudy days generally favourable for agricultural operations. Thermometer. Maximum ... 68° Minimum ... 41°	Pulse crop being gathered in; mustard flowering well; sugarcane being cut.	Public health good.
51	Naga Hills	„ 18th	0.29	Cold and foggy throughout the district.	The hillmen are busy cutting their "jooms."	
52	Khasi and Jynteah Hills.	„ 25th	Nil.	Clear; frosty at night and cloudy in the morning.	There are at present no crops under cultivation.	
53	Garro Hills	„ 25th	Nil.	in o. Atmosphere lazy; very little wind. A few clouds occasionally collecting about the summit of Tura range.	No crops on the grounds Jooms being cleared.	

Published for general information.

CALCUTTA,
The 4th February 1873.

H. J. S. COTTON,
Offg. Assistant Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 12th to 18th Jan. 1873.	Rain from 19th to 25th Jan. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.
					Inches.	Up to date.	
BENGAL.							
	WESTERN DISTRICTS.		Inches.	Inches.	Inches.	1873.	
BURDWAN.	Burdwan	Burdwan ...	Nil.	Nil.	Nil.	25th Jan.	Not received 12th to 18th Jan.
		Cutwa ...	ditto	ditto	ditto	ditto	
		Culina ...	ditto	ditto	ditto	ditto	
		Bood-Bood ...	ditto	ditto	ditto	ditto	
		Banceeungee ...	ditto	ditto	0.10	ditto	
		Jahnabad ...	ditto	ditto	Nil.	ditto	
	Bancoorah	Bancoorah ...	ditto	ditto	ditto	ditto	
		Boerbhoom ...	ditto	ditto	0.02	ditto	
	Midnapore	Midnapore ...	ditto	0.18	0.18	ditto	
		Tumlook ...	ditto	0.50	0.50	ditto	
		Gurbetta ...	Not rec.	Nil.	Nil.	ditto	
		Contai ...	{ Dy. Collr.'s Office ...	Nil.	ditto	ditto		ditto
		{ Exo. Engr.'s Office	Not rec.	Not rec.	ditto	4th Jan.	
Hooghly	Hooghly ...		il.	Nil.	ditto	25th Jan.	
Howrah	Serampore ...		ditto	0.05	0.05	ditto	
	Howrah ...		ditto	0.05	0.05	ditto	
	CENTRAL DISTRICTS.						
PRESIDENCY.	Saugor Island	Saugor Island ...	ditto	Nil.	Nil.	ditto	
		Calcutta ...	ditto	ditto	ditto	ditto	
		Alipore ...	{ Dispensary	ditto	0.10	0.10	ditto
			{ Jail	ditto	Nil.	Nil.	ditto
	24-Pergunnahs	Russeerhaut ...		ditto	ditto	ditto	ditto
		Baraset ...		ditto	ditto	ditto	ditto
		Diamond Harbour ...		ditto	0.45	0.45	ditto
		Barrpore ...		ditto	Nil.	Nil.	ditto
		Satkhora ...		ditto	0.20	0.20	ditto
		Barrackpore ...		ditto	0.07	0.07	ditto
	Nuddea	Dum-Dum ...		ditto	Nil.	Nil.	ditto
		Kishna-hur ...		ditto	Not rec.	ditto	18th Jan.
		Pongone ...		ditto	ditto	ditto	ditto
		Melherpore ...		ditto	ditto	ditto	ditto
		Chooandangah ...		ditto	ditto	ditto	ditto
	Jessore	Kooshita ...		ditto	ditto	ditto	ditto
		Ranghat ...		ditto	ditto	ditto	ditto
		Jessore ...		ditto	0.16	0.16	25th Jan.
		Nurail ...		ditto	0.80	0.80	ditto
		Khoolueah ...		ditto	Nil.	Nil.	ditto
	Moorshedabad	Jendah ...		ditto	ditto	di o	ditto
		Basirhat ...		ditto	Not rec.	ditto	18th Jan.
		Magoorah ...		ditto	Nil.	ditto	25th Jan.
		Berhampore ...		ditto	0.10	0.20	ditto
Ramporehaut ...			ditto	Nil.	Nil.	ditto	
City Moorshedabad ...			ditto	0.07	0.14	ditto	
Jamshypore ...			ditto	0.10	0.83	ditto	
Azimganje ...			ditto	0.09	0.13	ditto	
Dinapore ...			Not rec.	Not rec.	0.50	11th Jan.	
Maldah ...			Nil.	0.18	0.45	25th Jan.	
Rajshahye	Bendelah ...		ditto	0.25	0.48	ditto	
	Natore ...		ditto	0.23	0.51	ditto	
Rangpore	Rangpore ...		ditto	Not rec.	0.05	18th Jan.	
	Ghowangunge ...		ditto	ditto	Nil.	ditto	
Bograh	Titalya ...		ditto	Nil.	0.20	25th Jan.	
Pubna	Bograh ...		ditto	0.22	0.22	ditto	
	Pubna ...		ditto	0.06	0.06	ditto	
	Serjunge ...		Not rec.	0.07	0.07	ditto	
						Not received 5th to 18th January.	
COOCH BEHAR.	Darjeeling	Darjeeling { Telegraph Office	ditto	Not rec.			
		{ Hospital	Nil.	Nil.	Nil.	25th Jan.	
	Jalpigoree	Jalpigoree ...		ditto	ditto	0.05	ditto
		Fallaotta ...		ditto	ditto	0.14	ditto
Cooch Behar Tributary State	Boda ...		ditto	ditto	Nil.	ditto	
Bhutan Dooras	Cooch Behar ...		ditto	ditto	ditto	ditto	
	Buxa ...		ditto	ditto	0.44	ditto	
	EASTERN DISTRICTS.						
Dacca.	Dacca	Dacca { Telegraph Office	ditto	ditto	Nil.	ditto	
		{ Hospital	Not rec.	ditto	ditto	ditto	
		Moonshetge ...		ditto	ditto	ditto	Not received 12th to 18th January.
	Furreedpore	Manickganje ...		ditto	ditto	ditto	ditto
		Furreedpore ...		Nil.	ditto	ditto	ditto
		Gaubundo ...		ditto	ditto	ditto	ditto
	Backergunge	Burrisnail ...		ditto	Not rec.	ditto	18th Jan.
		Perozepore ...		ditto	ditto	ditto	ditto
		Madrinapore ...		ditto	ditto	ditto	ditto
		Pato-akhally ...		ditto	ditto	ditto	ditto
	Dowlat Khan ...		ditto	ditto	ditto	ditto	
Mymensing	Mymensing ...		ditto	Nil.	0.10	25th Jan.	
	Jamshypore ...		ditto	ditto	Nil.	ditto	
	Atten ...		ditto	0.20	0.24	ditto	
	Kishoreganje ...		ditto	0.20	0.20	ditto	
Sylhet	Sylhet ...		ditto	0.15	0.83	ditto	
Cachar	Cachar ...		0.04	Not rec.	1.04	18th Jan.	
	Hylakandy ...		0.90	ditto	0.90	ditto	
	Koyah ...		0.11	ditto	0.47	ditto	
						Not received 1st to 11th Jan.	
CHITTAGONG.	Chittagong	Chittagong { Telegraph Office	0.10	0.10	2.20	25th Jan.	
		{ Jail	0.23	0.12	0.35	ditto	
		Cox's Bazar ...		0.90	Not rec.	0.00	18th Jan.
	Chittagong Hill Tracts	Rungamutee Hill ...		Not rec.	ditto	Nil.	4th Jan.
	Nonkhally	Nonkhally ...		Nil.	0.01	0.01	25th Jan.
Tipperah	Comillah ...		ditto	Nil.	Nil.	ditto	
	Brahmanbariah ...		ditto	0.92	0.92	ditto	
Hill Tipperah	Hill Tipperah ...		ditto	0.29	0.29	ditto	

DIVISION.	DISTRICT.	STATION.	Rain from 12th to 18th Jan. 1873.	Rain from 19th to 25th Jan. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.	
					Inches.	Up to date.		
	BEHAR.		Inches.	Inches.	Inches.	1873.		
PATNA.	Patna	Patna	0.01	0.01	0.19	25th Jan.		
		Behar	Nil.	0.16	0.65	ditto.		
		Barh	ditto	0.11	0.11	ditto.		
		Dinapore... { Jail (Cantonment	ditto	Nil.	0.21	ditto.		
	Gya	Gya	ditto	0.11	0.17	ditto.		
		Nowadah	ditto	0.22	0.33	ditto.		
		Aurangabad	ditto	0.12	0.12	ditto.		
	Shahabad	Jehanabad	ditto	Not rec.	0.10	18th Jan.		
		Arrah	0.02	Nil.	0.32	25th Jan.		
		Sasseram	Nil.	ditto	Nil.	ditto.		
	Tirhoot	Buxar	0.05	0.10	0.30	ditto.	Not received 5th to 11th Jan.	
		Bhuboah	Nil.	Nil.	Nil.	ditto.		
Mozufferpore		1.30	ditto	2.20	ditto.			
Durbangah		Nil.	ditto	0.02	ditto.	Not received 1st to 4th January.		
Sarun	Hajipore	ditto	Not rec.	0.15	18th Jan.			
	Mudhubani	ditto	Nil.	0.18	25th Jan.			
	Seetamaroe	ditto	ditto	0.20	ditto.			
Chumparun	Tajpore	Not rec.	Not rec.	0.25	11th Jan.	Ditto ditto.		
	Chuprah	Nil.	0.10	0.20	25th Jan.			
	Sewan	0.09	0.10	0.34	ditto.	Ditto ditto.		
Mouhyr	Motehari	Nil.	0.80	0.90	ditto.			
	Bettiah	Not rec.	Not rec.	Nil.	4th Jan.			
BHAUGPUR.	Mouhyr	Begoesrai	Nil.	0.13	0.34	25th Jan.	Not received 5th to 11th January.	
		Jamouie	ditto	0.47	0.47	ditto.		
	Bhaugulpore	Jamouie	ditto	0.20	0.46	ditto.		
		Bhaugulpore	ditto	0.17	0.40	ditto.		
		Sopool	ditto	Nil.	Nil.	ditto.		
	Purneah	Mudheypoorah	ditto	ditto	ditto	ditto.		
		Banka	ditto	0.70	0.70	ditto.		
		Purneah	ditto	Not rec.	Nil.	18th Jan.		
	Sonthal Pergumnahs	Kishenrango	ditto	ditto	ditto	ditto.		
		Arrarah	ditto	ditto	ditto	ditto.		
		Deoghur	ditto	0.07	0.29	25th Jan.		
		Jamfara	ditto	Nil.	Nil.	ditto.	Not received 5th to 11th January.	
Sonthal Pergumnahs	Rajmahal	ditto	ditto	ditto	ditto.			
	Pakour	ditto	ditto	ditto	ditto.			
	Nya-Doomka	ditto	0.17	0.26	ditto.			
GODDA	Godda	ditto	0.51	0.62	ditto.			
	ORISSA.	Cuttack { Telegraph Office Hospital	Nil.	Nil.	Nil.	ditto.		
		Cuttack	ditto	ditto	ditto	ditto.		
Jajipore		ditto	ditto	ditto	ditto.			
Pooree	Kendrapara	ditto	ditto	ditto	ditto.			
	Juzensimpore	ditto	0.76	0.76	ditto.			
	False Point	ditto	Not rec.	Nil.	18th Jan.			
Balasore	Pooree	ditto	Nil.	ditto	25th Jan.			
	Khoordah	ditto	0.02	0.02	ditto.	Not received 1st to 4th January.		
Cuttack Tributary	Balasore	ditto	Nil.	Nil.	ditto.	Ditto ditto.		
	Mohals	Whuddruck	ditto	ditto	ditto	ditto.		
CHOTA NAGPORE— SOUTH-WESTERN FRONTIER AGENCY.	Hazareebaugh	Sambalporo	Not rec.	Not rec.	.....	.....
		Hazareebaugh { Jail Dispensary	Nil.	Nil.	Nil.	25th Jan.		
		ditto	ditto	ditto	ditto	ditto.		
	Loharduggah	Pachumba	ditto	ditto	ditto	ditto.		
		Ranchee	ditto	ditto	ditto	ditto.		
	Singbhoon	Palamow	ditto	ditto	ditto	ditto.		
		Chyebassa	ditto	0.10	0.19	ditto.		
	Maunbhoon	Purulia	ditto	Nil.	Nil.	ditto.		
		Gobindpore	ditto	ditto	ditto	ditto.		
	ASSAM & ADJACENT HILLS.	Goolparah	Goolparah	ditto	Not rec.	ditto	18th Jan.	
			Dhubree	ditto	ditto	ditto	ditto.	
		Kamroop	Gowhatty	ditto	ditto	0.11	ditto.	
Burpittah			0.15	ditto	0.50	ditto.		
Durrung		Tezporo	0.39	ditto	0.49	ditto.		
		Mungledye	Not rec.	ditto	0.04	11th Jan.		
Nowgong		Nowgong	0.05	ditto	0.05	18th Jan.		
		Sechsangor	0.90	ditto	0.21	ditto.		
Sechsangor		Gohachit	0.58	ditto	0.67	ditto.		
		Jorehaut	1.06	ditto	1.06	ditto.		
Luckimpore		Nazeerah	Not rec.	ditto	.....	.....
		Debrooghur	0.83	ditto	0.83	18th Jan.		
Naga Hills.	North Luckimpore	0.7	ditto	0.80	ditto.			
	Sudya	0.79	ditto	1.00	ditto.			
Khasi and Jynteah Hills.	Samoooodting	Not rec.	ditto	.....	.....	
	Shillong	Nil.	ditto	ditto	18th Jan.			
Garo Hills	Jaowai	ditto	ditto	0.21	ditto.	Not received 1st to 4th January.		
	Cherrapunjee	ditto	ditto	0.13	ditto.			
Tora	Tora	ditto	ditto	Nil.	ditto.			
	Benares	ditto	ditto	0.00	25th Jan.			

CALCUTTA,

The 1st February 1873.

H. F. BLANFORD,

Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 26th January to 1st February 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. =100.	WIND.		Rain.	Clouds.	Weather initials.	
					Dry.	Wet.		Direction.	Velocity.				
CALCUTTA.	26th Jan.	10	29.998	30.017	70.0	68.3	92	SE	...	...	...	b
	16	29.868	29.846	70.4	65.4	43	NW	...	...	...	...	b
	27th	10	30.019	30.038	70.5	61.2	56	NNE	...	...	...	b
	16	29.807	29.885	77.2	60.8	32	NNW	...	...	...	...	b
	28th	10	30.047	30.065	66.9	58.4	56	N	...	...	...	b
	16	29.907	29.925	70.4	60.0	32	NNW	...	...	...	...	b
	29th	10	30.061	30.080	70.0	60.5	54	NNE	...	...	...	b
SACOR ISLAND.	26th Jan.	10	30.016	30.022	72	71	95	NNW	2.2	...	...	f
	16	29.875	29.881	80	73	70	NNW	6.2	...	K	...	b	
	27th	10	30.013	30.019	75	62	44	NNE	6.8	...	C	b, m	
	16	29.982	29.988	78	60	29	N	10.7	...	...	...	b, m
	28th	10	30.055	30.061	72	61	49	NNW	6.0	...	...	b, m
	16	29.920	29.926	77	59	28	N	10.8	...	...	...	b, m
	29th	10	30.007	30.073	72	64	62	NNE	7.4	...	...	b, m
CHITTAGONG.	26th Jan.	10	29.998	30.003	70	64	70	NE	5.7	...	...	b, m
	16	29.818	29.912	76	69	68	W	8.1	...	...	...	b
	27th	10	29.917	30.019	70	65	75	N	5.6	...	...	b, m
	16	29.785	29.879	79	65	43	W	9.3	...	...	...	b, m
	28th	10	29.924	30.019	69	62	35	N	4.8	...	...	b, m
	16	29.798	29.892	77	66	55	W	7.4	...	...	...	b, m
	29th	10	29.919	30.013	73	66	67	N	6.4	...	...	b, m
MADRAS.	26th Jan.	10	29.845	29.938	79	72	69	W	6.8	...	...	b, m
	16	29.917	30.032	71	63	61	NNW	4.6	...	...	...	b, m
	27th	10	29.812	29.925	80	65	19	W	7.7	...	...	b, m
	16	29.939	30.043	75	66	59	N	6.3	...	...	...	b, m
	28th	10	29.889	29.973	82	71	55	W	7.1	...	...	b, m
	16	29.867	29.959	76	66	58	N	6.0	...	...	...	b, m
	29th	10	29.867	29.959	83	67	39	W	8.3	...	...	b, m
VITTAL.	26th Jan.	10	29.951	30.035	75	70	70	NE	0.6	...	...	b
	16	29.808	29.899	86	70	41	N	3.1	...	K, CK, N.C	...	b	
	27th	10	29.916	29.999	79	73	73	SW	1.2	...	K, CK, C	...	b
	16	29.773	29.865	85	73	51	S	4.4	...	K, CK, N	...	b	
	28th	10	29.939	30.022	76	71	77	NE	1.4	...	K, CK, N	...	b
	16	29.788	29.870	81	69	43	NW	3.2	...	C	...	b	
	29th	10	29.934	30.027	79	69	34	NE	1.9	...	...	b
ARVAB.	26th Jan.	10	29.831	29.913	84	70	49	WSW	3.6	...	...	b
	16	29.831	29.913	84	70	49	WSW	3.6	...	...	...	b
	27th	10	30.057	30.140	77	69	31	NNE	0.8	...	...	b
	16	29.876	29.959	82	63	29	NE	2.6	...	C	...	b	
	28th	10	30.019	30.113	75	63	47	NW	0.6	...	...	b
	16	29.876	29.958	83	63	27	ESE	2.1	...	...	...	b
	29th	10	30.020	30.112	76	65	52	ESE	0.9	...	...	b
ARVAB.	26th Jan.	10	29.958	29.980	71	64	55	ESE	1.0	...	...	b
	16	29.827	29.840	78	67	53	WNW	6.3	...	...	...	b
	27th	10	29.948	29.970	75	63	47	N	1.1	...	...	b
	16	29.799	29.821	79	66	47	NW	7.0	...	...	...	b
	28th	10	29.909	29.982	76	65	52	KNE	0.5	...	...	b
	16	29.842	29.854	79	68	51	WNW	3.0	...	...	...	b
	29th	10	29.993	30.015	78	68	57	NE	0.6	...	...	b
ARVAB.	26th Jan.	10	29.806	29.888	80	70	58	W	2.1	...	...	b
	16	29.806	29.888	80	70	58	W	2.1	...	...	...	b
	27th	10	30.008	30.040	78	70	65	E	0.5	...	...	b
	16	29.893	29.918	80	71	62	W	1.5	...	...	...	b
	28th	10	29.903	29.918	80	71	62	W	1.5	b
	16	29.924	29.946	82	73	51	W	6.3	...	...	...	b
	29th	10	30.023	30.045	75	67	63	ESE	0.6	...	...	b
ARVAB.	26th Jan.	10	29.904	29.926	81	71	59	W	2.8	...	...	b
	16	29.904	29.926	81	71	59	W	2.8	...	...	...	b

• Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 22nd to 31st January 1873.

Month	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.		
Jan.	22nd	30.075	77.5	62.7	125.0	60.8	64.3	59.9	0.72	E N E & E	...	81.8	...	) Cirro cumuli and clear.
	23rd	.000	78.5	62.7	130.0	60.8	64.6	60.3	0.73	S E & E by N	...	46.3	...	Chiefly clear. Slightly foggy from 4 to 7 A.M., at 8 and 9 P.M.
	24th	.033	78.5	63.2	131.0	70.1	64.4	59.8	.71	E by N & N W	...	31.8	...	Clear. Slightly foggy from 5 to 7 A.M. and 8 to 10 P.M.
	25th	20.050	80.6	61.9	133.5	70.7	65.0	60.4	.71	N E & N N W	...	33.2	...	Clear and cirri. Slightly foggy at 8 P.M.
	26th	.918	80.5	65.4	133.0	71.2	65.5	60.0	.71	S E & N N W	...	41.7	...	Clear and overcast. Foggy from 1 to 9 A.M. and 9 to 11 P.M.
	27th	.933	78.6	60.6	133.8	68.7	60.9	52.9	.59	N N E & N N W	...	78.1	...	Clear.
	28th	.963	77.3	55.8	130.2	66.1	57.4	50.4	.59	N N E & N N W	...	101.4	...	☉ Clear.
	29th	.987	79.0	58.7	131.2	67.5	59.1	52.4	.60	N by W & N N W	...	108.3	...	Clear.
	30th	30.002	79.0	58.0	128.0	67.9	60.2	54.0	.63	N N W & N W	...	101.4	...	Clear. Slightly foggy at 10 and 11 P.M.
	31st	0.17	82.0	60.0	133.0	70.2	63.1	57.4	.66	N W & N E	...	33.2	...	Clear. Slightly foggy at 8 and 9 P.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past ten days	...	26.2
The max. temperature during the past ten days	...	82.0
The max. temperature during the corresponding period of the past year	...	82.3
The mean humidity during the past ten days	...	0.67
The mean humidity during the corresponding period of the past year	...	0.75
		Inches.
The total fall of rain from 22nd to 31st	... { by lower rain gauge	Nil.
	... { by anemometer gauge	Nil.
Ditto ditto ditto	average of nineteen previous years	0.26
Ditto ditto between the 1st January and the 31st January	...	Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	0.42

GOPENAATH SEN,
In charge of the Observatory.

The 4th February 1873.

Weekly Return of Traffic Receipts on Indian Railways.

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 11th January 1873, on 28 miles open.

	COACHING TRAFFIC.		MERCHANDISE AND MINERAL TRAFFIC.				Total receipts.
	Number of passengers.	Coaching receipts.	Weight carried.	Receipts.			
		Rs. As. P.	£ s. d.	Mds. Srs.	Rs. As. P.	£ s. d.	£ s. d.
Total traffic for the week	8,196	1,243 0 0	124 6 0	14,215 0	440 0 0	44 0 0	168 6 0
Or per mile of railway	293	44 0 0	4 8 0	500 0	16 0 0	1 42 0	6 0 0
For previous 1 week of half-year ...	3,998	560 0 0	56 12 0	9,202 0	285 0 0	28 10 0	85 2 0
Total for 2 weeks	12,194	1,809 0 0	180 18 0	23,417 0	725 0 0	72 10 0	253 8 0
COMPARISON.							
Total for corresponding week of previous year	7,209	1,097 9 9	109 15 3	10,897 20	339 4 0	33 18 6	143 13 9
Per mile of railway corresponding week of previous year	257	39 3 3	3 18 5	380 0	12 1 10	1 4 3	5 2 8
Total to corresponding date of previous year	13,023	1,919 9 9	191 19 3	21,913 20	675 4 0	67 10 6	262 9 0

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 18th January 1873, on 28 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	13,961	1,794 0 0	179 8 0	16,254 0	450 0 0	45 0 0	224 8 0
Or per mile of railway	499	64 0 0	6 8 0	581 0	16 0 0	1 12 0	8 0 0
For previous 2 weeks of half-year	12,194	1,809 0 0	180 18 0	23,417 0	725 0 0	72 10 0	253 8 0
Total for 3 weeks	26,155	3,603 0 0	360 6 0	39,701 0	1,175 0 0	117 10 0	477 16 0
COMPARISON.							
Total for corresponding week of previous year	13,080	1,568 10 6	156 17 4	14,263 0	387 6 0	38 14 0	195 12 1
Per mile of railway corresponding week of previous year	467	56 0 5	5 12 1	509 16	13 13 4	1 7 8	6 19 9
Total to corresponding date of previous year	26,161	3,518 4 3	351 16 7	36,176 20	1,062 10 0	106 5 3	468 1 10

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 25th January 1873, on 1,280 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	102,736	1,52,738 3 1	14,901 0 0	706,948 0	3,49,318 5 3	32,020 16 11	46,021 16 11
Or per mile of railway	80	119 5 2	9 18 9	552 0	272 14 6	25 0 4	35 19 1
For previous 3 weeks of half-year ...	253,919	3,88,408 12 11	35,604 2 10	1,827,984 0	10,14,067 1 6	92,956 3 0	128,560 5 10
Total for 4 weeks	356,705	5,41,147 0 0	49,605 2 10	2,534,932 0	13,63,385 6 9	124,976 19 11	174,582 2 9
COMPARISON.							
Total for corresponding week of previous year	99,617	1,41,467 3 10	12,967 16 7	741,811 20	4,79,694 11 10	43,972 0 4	56,939 16 11
Per mile of railway corresponding week of previous year ... ..	.....	110 8 4	10 2 7	.....	374 12 2	34 7 1	44 9 8
Total to corresponding date of previous year	378,186	5,71,722 4 4	52,407 17 6	2,817,913 30	18,53,361 0 2	170,120 11 10	222,528 9 4

EAST INDIAN RAILWAY—JUBBULPORE LINE.

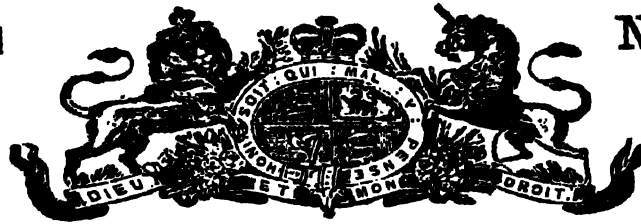
Approximate Return of Traffic for week ended 25th January 1873, on 223½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	4,273	12,091 9 1	1,108 7 10	76,513 20	25,391 7 9	2,327 11 1	3,435 18 11
Or per mile of railway ... ..	.....	54 1 7	4 19 2	.....	113 9 9	10 8 4	15 7 6
For previous 3 weeks of half-year ...	13,263	43,033 0 0	3,944 13 10	158,763 20	51,059 3 9	4,755 9 7	8,680 2 5
Total for 4 weeks	17,536	55,124 9 1	5,053 1 8	235,277 0	77,050 11 0	7,082 19 8	12,116 1 4
COMPARISON.							
Total for corresponding week of previous year	4,752	11,214 5 10	1,302 19 8	91,271 10	21,399 7 6	1,961 12 5	3,264 12 1
Per mile of railway corresponding week of previous year ... ..	.....	63 11 10	5 16 10	.....	95 15 5	8 15 11	14 12 9
Total to corresponding date of previous year	20,521	63,211 7 2	5,794 7 8	316,925 10	80,902 8 0	7,416 1 3	13,210 8 11

NALHATI STATE RAILWAY.

Approximate Return of Traffic for week ended 25th January 1873, on 27½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.		Mds. Strs.	Rs. A. P.		£ s. d.
Total traffic for the week	1,602½	1,050 0 0	165 0 0	6,590 0	519 0 0	51 18 0	153 18 0
Or per mile of railway	59	38 8 0	3 17 0	244 0	19 0 0	1 18 0	5 15 0
For previous 3 weeks of half-year...	4,113	3,052 0 0	305 4 0	15,697 0	1,299 0 0	129 18 0	435 2 0
Total for 4 weeks	5,715½	4,102 0 0	410 4 0	22,087 0	1,818 0 0	181 16 0	592 0 0
COMPARISON.							
Total for corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, FEBRUARY 12, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, the 8th February 1873.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *Presiding.*
 The Hon'ble G. C. PAUL, *Acting Advocate-General.*
 The Hon'ble F. L. BEAUFORT.
 The Hon'ble V. H. SCHAFFL.
 The Hon'ble C. E. BERNARD.
 The Hon'ble MOULVIE ABDOOL LUTEEF, KHAN BAHADOOR,
 The Hon'ble B. D. COLVIN.
 The Hon'ble T. M. ROBINSON.
 The Hon'ble RAJAH JOTEENDRO MOHUN TAGORE, BAHADOOR.
 AND
 The Hon'ble BAROO DIGUMBER MITTER.

MOFUSSIL MUNICIPALITIES.

HIS HONOR the Lieutenant-Governor said—It is my duty formally to announce to you that His Excellency the Viceroy has been pleased to refuse his assent to the Bill to amend and consolidate the law relating to Municipalities. The Viceroy has been pleased to publish the reasons for that refusal in the *Gazette*, and you are probably already aware of them. I feel I owe to the Council some apology for having imposed upon them much labor which has come

to naught. I may say for my own part that I also very largely shared with the members of the Council that labor; and I may also say as some excuse for myself, that when I submitted the Bill to the Council I had no reason to anticipate the views on the subject of local taxation which are held by the present Head of the Government in India.

However, the Viceroy has refused his assent to the Bill; as I have said the reasons for that refusal have been published, and they will be laid before you. It only remains, then, for me to explain the course I propose to follow, and which I shall ask the Council to follow, in the state of things which now exists. I will refer to the letter announcing the reasons which induced the Viceroy to give his refusal in regard to one or two points in that letter as guiding our future course. The most important paragraph, perhaps, is this, which I will read to the Council:—

His Excellency says:—

“While, however, His Excellency has felt it to be his duty, for the above reasons, to withhold his assent from the Bill, he fully recognizes the fact that it contains many useful amendments of the existing law with respect to Municipalities in Bengal; and the discussions which have taken place in the Legislative Council of Bengal, have satisfied him that some changes in that law might be made with advantage.”

That is paragraph 8 of the letter. It may be considered that that paragraph does to a certain extent invite us to reconsider this matter, to bring forward a new Bill embodying amendments and improvements on the existing law, such as the Viceroy might be willing to consider. I have fully considered that view of the case; but after due consideration I have come to the conclusion that I am not prepared to lay before the Council a new Municipal Bill of a general character. If the objections of the Viceroy had been of a partial character; if the situation had been such as that of the Government of India in regard to the Irrigation Bill which has lately been reconsidered by the Legislative Council of India after having been negatived by the Secretary of State; if the objections of the Viceroy had been, in any degree, of a particular, and not of a general character, then, probably a corresponding course might have been a proper course for us to follow. For instance, if the objections stated in the 5th paragraph of the Viceroy's letter had been the only objections, we might have tried another Bill. However much I may regret that His Excellency is opposed to the smallest modicum of compulsory rating in towns for primary education, that might be considered as a distinct and separate subject, and one which might be left apart from the Bill. On the other hand, with respect to the objection to the arrangement of Town Police imported into the Bill, I might have hoped that, when fully considered, His Excellency might have been persuaded to give his consent to that change in the management of the Town Police, which I thought a fair concession to the very distinctly expressed wishes of the people of towns in Bengal. The sections in the Municipal Bill which relate to the Police were, I believe, specially acceptable to the Native Members of the Council, as it reduced the burden of the Police in towns, and gave the Municipalities a greater control over the Police which they paid for. Again, His Excellency the Viceroy has expressed his disinclination that Municipalities should contribute, even voluntarily, towards the relief of the poor in times of exceptional distress. No doubt, our experience of the working of the Poor Laws in England has not been altogether favorable. And His Excellency has said that in extreme cases, in times of famine and very exceptional distress, contributions should be made from the general treasury. That is a view which I should not, as representing local interests, seem to contend against. I should be willing to remove that provision from the Bill, on the understanding that the Government of India will supply the necessary funds on occasions of famine which has been reserved as an Imperial as distinguished from a Provincial charge. Finally, the objections of the Viceroy to the provisions in the Municipal Bill which were substituted for Act VI of 1870, the Chowkcedaree Act, are of a character which might have made it desirable to separate that measure, and deal with it separately. As I have said, if the objections of His Excellency had been confined to all or any of these particular provisions, I should gladly have undertaken the labor of the preparation of a new Bill. Also, if the

objections had been to any particular tax, or to any one or two or more of the new taxes which as optional and alternative taxes were introduced into our Bill, in that case also, I should be perfectly ready to surrender my own opinion. I should have done so not altogether very unwillingly. I am not prepared to say that the view taken by the Council in former days, namely, that direct taxation in the nature of a local property and income tax on means and substance is the fairest to all parties, may not have been a sound one, provided the rule is well and fairly applied to all. I am not prepared to say that it may not be that indirect taxes, inasmuch as they are less immediately felt, may not on that account be liable to be somewhat unduly increased, as has been perhaps in some instances the case in the Panjab and in other Provinces. And if His Excellency had told us that his view is that we should stick to one form of taxation, namely, a direct tax on the means and substance of the tax-payer as provided in most of our present Municipal Acts, I should not be inclined to contend against that decision, and should be ready to meet the views of His Excellency in a new Bill. If, on the other hand, His Excellency had told us that there should not be any indication of the taxes to be imposed, that it would be better that the law should be passed in a general form as to taxation, which should be regulated by the local Government, subject to the control of the Government of India; if he had suggested that our Bill should be modelled on the model of the Panjab Bill just passed, where the taxation is not limited by law, but is liable to be limited by rules prescribed by the Government of India, that also I should be prepared to accept, if the Council were prepared to accept such a solution.

My object has been throughout not an increase of taxation, but the introduction of a system of self-government. My impression is that if the Bill which I had the honor to lay before the Council, had been carried out *bonâ fide*, and in the spirit of its provisions, it would not have led to increase in the rate of taxation. The little burden which may have been imposed for education would have been met by the relief that would be given in the cost of maintaining the Police; so that compulsory rating in towns would not have been increased. Then, if the taxation in excess of such moderate compulsory rating should be really and truly voluntary as the Bill provided, my impression is strong that you would not find the people too ready to tax themselves. If the Bill had been successful, if it had proved acceptable to the people, it is very likely it would have been extended to more towns, and there would have been an increase in the area, but not in the rate of Municipal taxation. The Council are perhaps aware (the figures have been published) that the total amount of Municipal taxation in Bengal is far less than in other Provinces. I find that the rate of taxation is also far less than in other Provinces; the incidence of taxation, the rate per head in the towns subject to the Municipal system, is far less than in the North Western Provinces, far less than in the Panjab; less than in Madras; less, I believe, than in any other Province in India. But low as our local taxation is, my own wish was not to speedily increase the rate of taxation, but to present to the people of Bengal a system of voluntary taxation, which they might eventually have extended over a greater area and to new objects really acceptable to them.

Be that as it may, what I was submitting to the Council is this, that I apprehend that the objections of the Viceroy to the Bill are of too radical and sweeping a character to make it possible that I should attempt a tinkering of the Bill with any success. I think that the objections expressed in the 6th paragraph of the Viceroy's letter are such that it seems clear that His Excellency objects to the whole Bill, and to the whole principle on which it is based, and that no mere tinkering is likely to make it satisfactory to His Excellency at the present time. That being so, my course has been very respectfully to tell His Excellency that I am not prepared to attempt to introduce another Municipal Bill of a general character. That task I shall leave to my successors. If I were in my own country, if I were a native of this country, I should have felt it my duty to wait for an opportunity to try again; to wait for times when a proposition of this kind might be more favourably received; to try another time, and another yet, to concoct

a Bill which would have some chance of being accepted. But being a stranger and a sojourner in the land, I feel that I have sufficiently done my duty in elaborating and proposing the best Bill I can; in placing before the Council a system of Municipal administration, such as, according to my lights, I think best calculated to give the people real local self-government. Since that effort has been unsuccessful, I must leave it to others to try again some other day. Therefore I have told the Viceroy most respectfully that I shall not attempt to introduce a general Municipal Bill again.

Then comes the question what we are to do with reference to the present position as affected by the paragraphs of the Viceroy's letter which I have read, and those which I shall read. My view is that we must make the most of the Municipal Acts which we have at present. No doubt, they give to the Government the power of compulsory taxation for the maintenance and construction of roads, for conservancy, for hospitals and vaccination, and for other purposes, which, under the existing law, may be carried far beyond the point to which they are now carried. My feeling is that it is well that I should observe not only the letter, but the spirit of His Excellency's decision in regard to the present Bill. It is not desirable that I should, by means of the existing Acts, attempt to increase taxation in the country.

I come then to the particular points affected by the present decision. The first point is in regard to the provision for roads. In the Acts which now have force in Bengal, it is compulsory on Municipalities to provide for the construction and maintenance of roads. It was an object of the Bill which has not been carried out to supplement the Road Cess Act of the previous session, inasmuch as by the provisions of that Act Municipalities are exempted from the rating for roads which prevails in the rest of the country. It is evidently necessary that the district roads should in their course pass through towns, and it is but fair that the people of the towns through which district roads are carried should pay for the maintenance of that portion of the roads which pass through their towns. I think I shall not be acting contrary to the spirit of the Viceroy's decision if I arrange that so much as is necessary to give effect to that equitable obligation for roads shall be charged in the Municipal Budgets of the towns through which district roads pass. So much is in our power, and I shall I hope be able by this indirect means to supplement the Road Cess Act, and to answer that the portions of district roads passing through Municipalities shall be maintained at the expense of such Municipalities.

Then we come to the subject of Police. Whatever the fate of the measure in other respects, I regret that I should have been deprived of the opportunity of making this concession to Municipalities in regard to the character and cost of Municipal Police, and thus establishing a saving which they might devote to the furtherance of other objects. But, in looking into the matter, I find that the present law will not permit us to make any material change. Act VI. of 1868, section 8, is in these words: "All police officers appointed or employed in any town shall be appointed under the provisions of Act V. of 1861, passed by the Governor General of India in Council." That is the regular Police Act. Under these circumstances, it is impossible that I can change the police system in towns. The law requires that they shall be enrolled as part of the regular District Police, and things therefore must, in this respect, remain as they are.

Then I come to a very important part of His Excellency's letter, paragraph 9, which refers to the system of self-government, which was the main object I had in placing the Bill before the Council:—

"His Excellency believes that under Act VI of 1868 and the District Road Cess Act of 1870, sufficient powers now exist for the introduction into Bengal of a system under which Municipal and local affairs may gradually come to be administered by bodies in which the people are represented, and any proposal which the Legislative Council of Bengal may make to amend Act III of 1864 in the same direction would command His Excellency's favourable consideration."

Well, I have given much consideration to that paragraph of His Excellency's letter. I may say that, the whole question of taxation apart, I should be delighted to give effect to the permission which this paragraph contains,

if I thought I could do so with reasonable prospect of success. I hold very earnest views on the subject of local self-government. I believe that the position of foreigners like ourselves in India is a somewhat false one. I believe it is our duty to educate the people, as far as in our power, to govern themselves. I believe that the power and the habit of self-government must come from below upwards; that it must come from Municipal institutions first, going upwards to higher and larger institutions. And it was very much in that view that I have been anxious to have authority to make a commencement of a scheme of local Municipal self-government. Anticipating the probability of the passing of the Bill which I had placed before the Council, and which they favourably received, I enquired by circular from various officers, directing them to sound the feelings of the people of towns and Municipalities on the subject of self-government by elected representatives, and I hold an abstract of their reports in my hand. I am quite free to confess that those reports are not very encouraging. I am aware that many officers have reported, and reported truly, that all local taxation and local rating is unpopular in Bengal as it is in most countries. I must also confess that the reports of most of these officers are generally unfavourable to any system of Municipal self-government. I find the opinion very strongly expressed, which coincides very much with my own opinion to-day expressed to you, that a voluntary system will not lead to an increase, but to a decrease of taxation. If we have elected members, "the only object (one Magistrate says) of the new class of members would be the reduction of the taxes to a minimum." The next Magistrate is of the same opinion. Another Magistrate says that if power is delegated to independent elected Commissioners, they will immediately "stop all improvements." I should myself be willing to run the risk of a check to improvements, feeling that the power of self-government is even more important than material improvement. I find, however, that the Magistrates also express the strong opinion of many whom they have consulted, as well as their own, that the people are not fit for self-government. One thinks that they "are incapable of understanding what is meant by representation." Another thinks that "the people have more faith in English officials than in their own countrymen; that they have no independence, and no sympathy with the police in the suppression of crime." At present (he goes on) "it is nearly as hard to get Municipal Commissioners as it is to get jurors;" and he thinks "the elective system is undesired and undesirable." Another Magistrate says that a meeting was called of the respectable people.—I do not know whom he calls "the respectable people,"—at which it was resolved that the scheme was "premature." The Commissioner of a great Division says that Magistrates with the help and advice of native gentlemen could do much better than elected representatives could. I will only quote the opinion of one more officer who has given a very decided opinion, namely that "self-government is a deplorable mistake in England; and if it is introduced into Balasore, roads will become impassable, and sanitation be done away with." That is a very strong opinion indeed. I am not prepared to say that there is not a great deal of truth in these observations. But the moral I would draw from them is, not that municipal institutions are in this country impossible, but that they are difficult of introduction in the present state of matters, and that they ought not to be introduced under disadvantageous circumstances which do not offer the best chances of success. I am myself convinced that, in spite of these difficulties and objections, municipal self-government is not foreign to this country, but inherent to it, being the ancient rule and habit of the Hindu race. I am convinced that these municipal institutions are in themselves most desirable. I would above all things deprecate their being tried under disadvantages which may lead to failure in their results, and so may cause discredit to the system; but I think they should be introduced when they can be introduced under circumstances which give the best and greatest chances of success.

Well, looking to see whether there are in the Acts now existing materials for such a fair trial, I find that the only Municipal Act admitting of elective institutions is Act VI of 1868. Power is there given to the local Government to cause the election of Municipal Commissioners. That power is no doubt somewhat obscurely expressed, but I believe that it exists. And if there were no other difficulties, I shall be quite prepared to give the towns in which Act VI of

1868 is in force the power of electing Municipal Commissioners. But I have said that I think it necessary if the elective principle is tried at all, that it should be introduced under the most favorable circumstances. Now, what are the circumstances under which it might be tried under that law? What are the functions of Municipal Commissioners under Act VI of 1868? I find, when I look to that Act, that the principal duties of Municipal Commissioners under the Act are defined to be "to consult and advise with the Magistrate." I find that in reality they have no independent powers at all. Under section 15 of that Act the mode of taxation is this. Not the Municipal Commissioners, but the Magistrate prepares the budget, showing what money is to be raised and expended. Then the Municipal Commissioners have the opportunity of saying what they have to say. In regard to the preparation of the budget, they have the power of tendering advice. The Magistrate prepares the budget, the Commissioners may object to the items in that budget, and the Magistrate may listen to their objections or not, as he thinks fit. The budget then goes to the Commissioner of the division, and he again may alter it; he may put into it whatever items he thinks fit. So that in reality Act VI of 1868 is throughout a compulsory Act. The taxation under that Act is compulsory. The Municipal Commissioners have only the moral power of doing what they can by argument. But they have no real power. The question is whether we really can expect that elective institutions can be fairly tried under such a system. I think not. If the Municipal Commissioners are to have no power but to consult and advise, you cannot expect that the people will take a real interest in representative institutions. If you are gradually to bring the people to appreciate the system of self-government, to lead them to take an interest in their own affairs, they must have real and practical power in their own affairs. And the greatest power of all being taxation, they must have real power in respect of taxation. I do not think that elective institutions will be fairly tried if we attempt it under a system under which we can only allow elective bodies to consult and advise. For these reasons I am not prepared to try elective institutions under Act VI of 1868, while the people express no wish for such institutions.

Next, mention is made in the Viceroy's letter of the District Road Cess Act. It is true that under that Act provision is made for elective institutions; but the course I intended was first to try elective institutions in a small area in Municipalities, and then, if the system succeeded, to extend them to greater areas in districts. Undoubtedly, great power is vested in the District Committees under the Road Cess Act. The District Committee is the power which determines the rate and amount of taxation for roads and other means of communication. And if it were possible to entrust the choice of those Committees to popular elective bodies, I should be most ready to do so. But when I look the matter in the face, I fear that the difficulties in the way of the election of those Committees are appalling. Those who know what County elections are in England, will have little difficulty in realising what difficulty there will be in making elections in the much larger areas of districts in Bengal. An Indian district is as large as three or four ordinary Counties in England. An election for an Indian district would be something like what an election for the whole County of Yorkshire would be. Most of us have some idea what the difficulties would be if we were to attempt a really popular election in so great a tract of country. I much fear that such an election would be almost impossible to carry out satisfactorily: the difficulty quite appals me.

Then as regards the sub-committees for the sub-divisions under the Road Cess Act. There I am met with the same difficulty as that which exists in regard to Act VI of 1868, namely that the sub-committees are only administrative bodies to administer the funds assigned to them by the district committees or the Government. They have no power over the rate or amount of taxation. That is my difficulty in regard to sub-committees under the Road Cess Act. If I saw my way to the creation of elective institutions in which the people could take a real part in the management of their own affairs, I should be prepared to attempt it. But I am not very sanguine on the subject of making a first *beginning with Road Cess Committees.*

Finally, there is Act III of 1864. That Act does not contain any provision for elective institutions. And my impression is that, in order properly to introduce elective institutions under that Act, so radical a change in the Act would be required as would almost amount to a large Municipal Bill, such as I am not prepared to attempt. Amidst the many reports which the Government has received unfavourable to the prospects of municipal self-government, there are one or two which, if not calculated to induce one to take a very sanguine view, show that there are two or three towns in which the people are not indisposed to aid in the establishment of elective institutions. It is reported that "in Midnapore the feeling is strongly in favor of representative Government, owing to all municipal arrangements having fallen into the hands of the Joint-Magistrate." That sounds somewhat like a local and temporary reason; but if the people of Midnapore adhere to their opinion in favour of elective institutions, I shall be very sorry that they should be disappointed. In Nuddea, it is said, the scheme seems to be popular, at least with the upper and middle classes. The Magistrate would certainly not allow elective institutions in Santipore, the inhabitants of which presented a petition for its trial, but where the supervision must necessarily be slight, and "factions are strong and bitter." I am told that factions are really strong and bitter in Santipore, and I fear it is not a place in which municipal institutions can be first tried with the best hopes of success. But the Magistrate would introduce the scheme tentatively in Kishnagur. Therefore the only two towns in which I am encouraged to try elective institutions are Midnapore and Kishnagur. Both those towns are under Act III of 1864, which is not an Act admitting of elective institutions. The Viceroy has said that he is willing to consider a plan for altering Act III of 1864 in that sense. If I see my way to an alteration, which will admit of elective institutions, without attempting a radically new Bill, I shall be prepared to attempt it. But for the present any attempt at elective institutions must be of a very limited character, and confined to those few cases in which the people have expressed a wish to have such institutions.

That being so, I must, very reluctantly I say it, give up the idea of making any large attempt to introduce self-governing institutions in Bengal. It was perhaps of all the plans which I have designed my most cherished idea. I have done my best, and I must submit to the decision at which the superior authority to whom this power is entrusted has arrived. I will still hope that our work has not been entirely lost. The Viceroy has been pleased to bear testimony to the importance and usefulness of our work. I am not without hope that it may fructify another day. For the present it has come to naught. But perhaps another day may come when some such plan will not be regarded with such disfavor by the representative of Her Majesty. When the people of Bengal are a little further advanced, perhaps they will regret the opportunity of self-government which has now gone by. Even now I am not sure that when they come to think of it, some will not regret it. However, as I have said, I hope our labor is not utterly lost. In that hope I shall direct that the Bill as passed by this Council and the most important part of the proceedings in connection with the Bill, including the speeches of honorable members, shall be bound up in a volume, which I shall have the honor to present to the members and to those outside who may wish to possess themselves of such a treasure.

Before I sit down, there are one or two further subjects touched upon in the letter from His Excellency the Viceroy, regarding which I must say a few words as to the course I intend to follow. In paragraph 10 His Excellency makes this important remark:—

"It might be in His Excellency's opinion desirable to amend the present law, so as to enable Municipalities under Acts III of 1864, and VI of 1868, voluntarily to contribute in aid of education within their districts"

The only difficulty which strikes me is this, that the present Acts are so entirely of a compulsory nature that it would be somewhat difficult to engraft on them voluntary provisions. But the object is a great one. The people of

Bengal are so much inclined to further education, that I think they will voluntarily contribute towards education. And I shall not shrink from any difficulties not absolutely insuperable. I hope to lay before the Council a Bill which will permit the Municipalities governed by these Acts voluntarily to contribute to the promotion of education within their limits.

There is only one more important subject which I wish to notice, namely, the observations of His Excellency regarding the part of the Bill founded on Act VI of 1870, the Chowkeedaree Act. His Excellency says:—

“In consequence of reports which have recently been received of the operation of Act VI of 1870, he entertains great doubts as to the suitability of the powers given to punchayets under that Act; he thinks therefore that further experience is required before the functions of such punchayets are increased, and Municipal institutions further extended to the rural population.”

It seems to me, and I think it will seem to the Council, that the objections which His Excellency has taken to the provisions of the Municipal Bill on this subject, do in fact refer, not to the reforms made upon Act VI of 1870, but to that Act itself. His Excellency's objections are to the system of village government under Act VI of 1870, and not to the improvements and reforms on that Act, which are contained in the Municipal Bill. The situation in the matter then is this. I myself have a very strong objection to the provisions of Act VI of 1870 in regard to chakran land; and I have before announced my intention not further to extend that Act in districts in which chakran lands abound. His Excellency the Viceroy has a strong objection to the whole system of that Act, to the power given to punchayets under the Act. I shall be acting in the spirit of His Excellency's views in refraining from putting that Act into operation in fresh districts at present. Then the question would be whether it would be desirable to repeal that Act, and reconsider the whole subject; or whether it could be amended by making the character of the village institutions set up more simple—simplifying the constitution and modifying the powers exercised by punchayets. I am not prepared to say which course the Government will take in that matter. We will give the subject our best consideration, and no steps will be taken to extend the operation of that Act in the meantime.

I think I have laid before the Council, as clearly as I can, the course it is proposed to follow in regard to these very important matters which are involved in the decision of the Viceroy regarding the Municipal Bill. The Council may depend on it that although I am not prepared to bring in a new General Bill, I shall not allow discouragement to prevent me from trying to make such minor improvements as may still be in my power. I shall carry out those partial improvements which His Excellency's decision permits, so far as I think they can be usefully and advantageously carried out.

Having said so much, I shall not detain the Council any longer at present, but shall leave in the hands of the Council the measures which I may place before them to give effect to the views which I have expressed.

SALT ACT AMENDMENT.

THE HON'BLE MR. BEAUFORT presented the report of the Select Committee on the Bill to amend the Salt Act, 1864, and moved that it be taken into consideration in order to the settlement of the clauses of the Bill in the form recommended by the Select Committee. He said the Select Committee had made a very small alteration in the Bill by introducing a few words at the end of section 1 for the purpose of defining the powers of Magistrates with reference to the Code of Criminal Procedure. He did not think he need trouble the Council with any remarks on this occasion.

The motion was agreed to.

THE HON'BLE MR. BERNARD said that a Collector in one of the Salt Districts of Bengal had sent up to the Government recommendations for the improvement of the Salt Laws. These were laid before the Government of Bengal; but it seemed to the Government that if those suggestions were to be carried out to their conclusion, the whole of the Salt Laws would have to be revised. The present Bill provided only for an immediate necessity, in order

that the trial of salt cases should not be unnecessarily prolonged, and not give unnecessary labor and trouble to the people concerned. Under these circumstances it was proposed that this Bill should be carried through, and that any question of a new general Salt Bill should be separately considered.

The clauses of the Bill were then agreed to without amendment.

THE HON'BLE MR. BEAUFORT moved that the Bill be passed.

HIS HONOR THE PRESIDENT observed that as the Hon'ble Member in charge of the Bill had not given notice of motion for the passing of the Bill, and there was no necessity for precipitancy, he thought the Bill might stand over to the next meeting of the Council.

The motion was by leave withdrawn.

EMBANKMENTS AND WATER-COURSES.

THE HON'BLE MR. SCHALCH moved that the Report of the Select Committee appointed to consider certain amendments in the Bill to amend the law relating to embankments and water-courses be taken into consideration in order to the settlement of the clauses of the Bill; and that the clauses of the Bill be considered for settlement in the form recommended by the Select Committee. The subject, he said, had been so often before the Council that it was unnecessary for him to say any thing further on the present occasion. He had intended to make a few remarks in regard to the petition from the British Indian Association, received since the Bill came before the Council last time. But in looking over the petition he found that the questions mooted in them were more or less affected by the amendments which were to be proposed on the Bill. He therefore thought it better that the consideration of these questions should be deferred until they could be fully considered when the amendments referring to them were brought up.

THE HON'BLE DIGUMBER MITTER asked that the amendments of which he had given notice be taken up and disposed of first, because they addressed themselves so much to the leading principles of the Bill that, if any one of them were carried, it would be necessary to recast the whole Bill.

HIS HONOR THE PRESIDENT observed that he was entirely willing to accept the proposition of the Hon'ble Member.

The motion was then agreed to.

THE HON'BLE DEGUMBER MITTER said: I have to move that in Section 6 the words from "or make" in line 5 to "water-course" in line 9 be omitted. I object to these words because they confer a power of interference on the Government Engineer which I believe to be quite repugnant to rights which a proprietor should enjoy in the management of his own estate, and which rights have been very wisely guaranteed to him by the permanent settlement. The question whether the maintenance of a particular line of embankment by a zemindar, where by the terms of the settlement the same is to be done at his own cost, is optional or compulsory, was raised so long ago as 1837, as we find from the copy of a letter from the Sudder Board of Revenue to the Government of Bengal, which, with his valuable notes on the subject of embankments, were placed in our hands by the Hon'ble Member opposite (Mr. Bernard) during the short time he was in charge of the Bill. While alluding to these documents, I cannot allow the opportunity to pass without expressing my thankfulness to the Hon'ble Member for the valuable aid he has rendered in the proper understanding of the knotty question before us, by bringing within our reach at much labour and research facts which would have been otherwise unavailable to us, and without which we would have been quite helpless in dealing with many questions of principle or of detail which the Bill under consideration raises. Apologising for the digression, I would beg to submit that amongst other questions the one about the liability of the zemindars to maintain particular lines of embankments engaged the earnest attention of the Board of Revenue in 1837, and I will, with the permission of the Council, read from their letter, dated the 2nd May 1837, the decision

come to on the subject and acquiesced in, I should mention, by the Government of the time—

“ 21. In Chittagong the Commissioner and Collector concur in thinking the zemindars bound by their engagements to keep up bunds and roads; the latter in that part of the country partaking very much of the nature of the former.

“ Both officers state that the zemindars do not perform their engagements in this respect, and that there are no means within their knowledge of compelling them to do so.

“ 22. The Commissioner forwards a copy of kubooleut, such as have been signed by the zemindars of Chittagong at the decennial settlement, in proof of the liability of the zemindars ‘to make and maintain the embankments, public roads, and bridges in their several estates under the terms ailbundee, kutteeburdee, and poolbundee.’

“ 23. The Board observe, however, that the kubooleut forwarded by the Commissioner, which is said by the Collector to be precisely the same in all the zemindarias, by no means warrant the extensive liability which Mr. Harvey would throw upon the zemindars, though it certainly releases the State from the necessity of bearing the expense of embankments. The kubooleut merely says, ‘I will keep up embankments regularly in my estate according to custom. Should I fail to do so, whatever loss may follow is mine only,’ and if there can be any doubt of the meaning of these words, it is cleared up by what succeeds, in which the zemindar binds himself not to withhold his revenue ‘on plea of drought, inundation,’ and other calamities of a like nature.

“ The meaning of the engagement is indeed merely this, that the zemindar might make bunds or not, as he chose, but that if he failed, he was not to claim from the State compensation for consequent loss.

“ The Commissioner has extended this, so as to consider the zemindars liable for the construction and repairs of the great military road between Comuillah and Chittagong, a road which could only have been made originally at enormous expense, and which is now nearly useless for want of brick bridges, of which in a space of about eighty miles, full fifty of a large and expensive kind are absolutely required.

“ Such a construction of the kubooleuts the Board conceive altogether unauthorized, and they have dwelt upon it at greater length, because the kubooleuts of Bengal generally are very similar in words, and, as they think, quite similar in spirit to that just quoted.”

The Commissioner of Chittagong has subsequently explained that his opinions on this subject have undergone alteration, and that his view of the liability of the zemindars is very nearly that of the Board.

I have only to read a portion from the valuable notes of the Hon'ble Member (Mr. Bernard) to show that the liability incurred by the zemindars in other districts with respect to embankments is precisely the same as in Chittagong—“And the kubooleuts of the permanent settlement in most parts of Bengal engage that the zemindars shall maintain embankments, and that they shall accept any loss which may accrue from their non-maintenance.”

Now, if the zemindar, as we find from these documents, is left unfettered by the terms of his settlement in the exercise of his own discretion in the construction and maintenance of embankments, and if in the proper exercise of this discretion he was subject to no other control than what would be imposed by a due regard to his own interests, the very best control, however, that could possibly be devised, where, may I ask, is the justice of empowering the Government Engineer with the sanction of the Collector, or the Commissioner in case of difference between the two former, to run a line of embankment at any place he liked, and compelling the zemindar or zemindars to contribute to its cost? It cannot be alleged, even if such allegations were of any weight either in law or equity against guaranteed rights accruing from contract, that the zemindars have habitually used this power to the detriment of the public or their own interest. For such an allegation will be at once negatived by the unanimous testimony borne to the fact of those permanently settled estates in Bengal being in a high state of cultivation, it being impossible to point to any tract of land in those estates which remain waste, or which is suffered to run into waste by reason of neglect to protect it by proper embankments. But however much I may object to the clause in question on the score of injustice, I cannot too sufficiently admire the tact and ingenuity displayed in its insertion in this Bill. Its utility can be only understood when it is considered in connection with Sections 41 and 45. By those sections certain embankments which have been hitherto maintained at the expense of the State, for valuable consideration at one time considered to be adequate and sufficient, are now for the

first time proposed to be abandoned to the zemindars or maintained at their cost in case any of them were required to be taken charge of by the Government Engineer. But many of these embankments happened to protect important towns and cities, such as Moorshedabad for instance; and as in case of their abandonment by Government it will be optional with the zemindars, unless otherwise provided in the Bill, to maintain them or not, and as in many instances it would be to the interest of the zemindars not to maintain them, something must be done to enforce their maintenance, whether they benefited the zemindars or not, so long as they were necessary for the protection of important towns and municipalities: and hence the necessity of the clause in question. It so happens, however, that a question involving circumstances of the same perplexity as those which the framer of the Bill had to confront, was submitted for the consideration and orders of the Board of Revenue about five and thirty years ago. But how different was the spirit then manifested in the solution of the problem, will appear from certain paragraphs of the letter to which I have already referred, and which, with your permission, I will now read:—

“26. In Moorshedabad, as already stated, the Government at present bears the whole expense of the embankment, though, except in pergunnahs Futtehsing and Rokunpore, no engagement exists binding it to such liability. The Commissioner points out this fact, and adding that the kuboolents of the zemindars contain express stipulations for the repair of

* Amounting annually to the bunds by them, and that in two estates actual remissions* have Rs. 2,986. been allowed for that very purpose, contends that the whole charge for embankments should be borne by the zemindars in rateable proportions; except only in sudder stations, where he thinks the state which is benefited by the protection of its public buildings should defray a portion.

“27. The Board are agreed with the Commissioner as to the non-liability of Government. They do not, however, agree with him, if, as they apprehend, he would enforce the repair of the bund by the zemindars. They look upon it as completely proved by experience, and

† In Rajshahye and Jessore. experimented upon a very large scale,† that the inundation of the Ganges and its tributary and branch streams in Bengal is not to be repelled, but rather solicited. It is always gradual, always fertilizing, and always tends to raise the level of the country subject to its effects.

“28. In Rajshahye very marked improvement has followed the abandonment of the bunds in 1819, and while much new land has arisen where formerly only existed jhees and swamps, the whole district has gradually risen above its old level, and is accommodating itself naturally and speedily to the inundations of its numerous rivers.

“29. To abandon the bunds in Moorshedabad, with exception to the two pergunnahs mentioned in my 9th paragraph, will, in the opinion of the Board, be ultimately, and at no very distant period, as beneficial as the same measure has proved elsewhere.

“30. For the protection of public stations and cantonments bunds will always be necessary, but their expense should be borne not, as suggested by the Commissioner, jointly by the State and zemindars, but by the State alone.”

It would be thus seen that a proposal which by the Government of 1837 was condemned and rejected as being both arbitrary and unjust towards the zemindars, and for reasons from which it is not easy to withhold one's assent, is again brought forward and sought to be ratified by an Act of the Legislature. There is yet another aspect, Sir, presented by this question which is deserving of notice. I mean as regards the parties who are made liable to bear the cost of the embankments which may be constructed by the Government Engineer under the power vested in him by the clause under comment. With an utter disregard for the usages, customs, and laws which have hitherto obtained upon the subject, the Bill provides that the cost of such works is to be recovered from the zemindars, who are for that purpose defined in the Bill, as also municipalities, according to the benefits they will respectively derive, or in proportion of the areas of the estates protected and benefited by such works. The zemindars, again, are to recoup themselves from their tenants of a certain class. Now, it cannot be unknown to this Council that it is not every estate in Bengal that requires protection from embankments, but when such work is necessary, it forms a very heavy item of outgoings from the assets of the estate. In the formation of the permanent settlement, the expenditure really incurred in any estate under that head was taken into account when the revenue payable to Government by such estates was determined. For instance, estate A is situate on the bank of a mountain torrent, liable to be

swept away without a moment's warning, or on the bank of a salt creek liable to be inundated by the overflow of the creek; such an estate must be protected by proper embankments, the cost for the maintenance of which, along with costs of collection, &c., was taken into account when the Government revenue was assessed upon it. But not so in the case of an estate like B, which is situate further inland, and which, though liable to be inundated, and injured like A by the same mountain torrent or salt creek, was yet exempt from the necessity of maintaining embankments, inasmuch as the embankment of the estate A sufficed to give it the required protection. Consequently, in assessing the Government revenue on estate B, no allowance was made on account of embankments or *poolbundie khurcha*. In fact, the allowance made for embankment charges in respect of the estate A was for the common benefit of A and B, as also other estates similarly situated as B. Now, the effect of the apportionment clauses in the case of A and B is, that the proprietor of A will be relieved from his just liability of bearing the whole cost of the embankment which he incurred for valuable consideration had and received when the estate was permanently settled with him—while the owner of B, who never incurred any such liability, and to whom no allowance had been made on account of embankment charges, will nevertheless be burdened with such charges simply to relieve A. The justice, again, of permitting the owners of A and B to recoup themselves from their ryots, is equally, if not more, questionable. The implied understanding with every tenant in Bengal is, that his zemindar is to afford the customary protection to his land by the maintenance of proper embankments for the whole estate where necessary, and that he is not to be charged additionally for that protection. It is upon this understanding that the settlement in every instance is made with the ryot, and the rent and bonus payable by him are fixed. Under such circumstances, I think it will be highly improper to arm the zemindar by an Act of the Legislature with the power of enforcing fresh demands in violation of the terms of his contract with the ryot—a contract which, though not in every instance reduced to writing, is yet sufficiently solemn and binding, and which no zemindar can repudiate without committing a gross breach of faith.

As for the difficulties which have to be encountered in giving practical effect to the apportionment clauses of the Bill with any eye to justice, I need not now say much. One of them is at the last moment attempted to be got over by the insertion of two new sections, as I find from the notice of amendments given by the Hon'ble Member in charge of the Bill. But there are others, and very serious ones too, which have scarcely yet suggested themselves to the Hon'ble Member, but which it is not my purpose at present to dilate upon. Perhaps the Hon'ble Member in charge of the Bill will cite the Act for the acquisition of land for embankment purposes passed by this Council in 1866, and the Hooghly and Burdwan Drainage Act, for a precedent in support of the apportionment clauses of the Bill. But the last mentioned Act has scarcely yet been enforced; and as regards the first, it will be difficult for him to mention one instance in which the rule of proportion enunciated therein has been practically tested in finding the relative measure of benefit derivable to land from protective works. I had myself, about two years ago, applied for the construction of a sluice in a public embankment under the provisions of that Act, as the work was to benefit others equally with myself. But I subsequently discovered that the difficulty was so great, either in causing the work to be expeditiously taken in hand, or afterwards deriving any pecuniary relief from the apportionment clauses of the Act, that I withdrew my application and substituted it by another under Act XXXII of 1855, tendering at the same time half the estimated cost of the work. It was evidently in view of these insurmountable difficulties and obligations arising out of contract between the State and the zemindar, or between the latter and his ryots, that the Legislature of 1855, while empowering the Government Engineer to take charge of certain existing private embankments, wisely abstained from ruling that the cost of such works should be recoverable from any others than the zemindar who had hitherto maintained the same. I should also mention that, evidently in view of the contract existing

in respect of embankments, the same Legislature also very wisely ruled for the grant of compensation for damages which any one may sustain by reason of this interference with private rights, as a reference to section 9, clause 1, Act XXXII of 1855 will show. So that, Sir, the clause in question is not only unjust in itself, as involving a direct encroachment upon the rights guaranteed to zemindars by the permanent settlement and upheld by successive legislative enactments, but leading to a cumulative wrong, as I have already, though feebly, attempted to show.

THE HON'BLE MR. SCHALCH said, instead of confining himself to the amendment proposed in regard to section 6, the Hon'ble Member had in his remarks ranged over the whole of the amendments which he proposed to introduce in the Bill. The Hon'ble Member first objected to the power given to the Engineer to construct new embankments, and he then went into the question of the embankments maintained by Government (section 41), and the liability of zemindars to maintain embankments. He then proceeded to the question as to the Government paying half the cost of sluices to be constructed in embankments maintained by Government. And, lastly, he proceeded to remark with regard to the provisions of the Hooghly and Burdwan Drainage Act. MR. SCHALCH thought it would be more easy for the despatch of business if we confined our consideration to the first amendment, and then took up the Hon'ble Member's remarks in regard to the other sections as the particular sections to which they referred came before the Council.

Confining his remarks to the Hon'ble Member's observations in regard to section 6, MR. SCHALCH begged to observe that the present proposal was not a new one. It existed now under the existing Act XXXII of 1855, section 4, clause 3 of which provided that the superintendent of embankments "may also, when necessary, change the line of any public embankment or make a new embankment." We were now merely continuing in more specific terms a power which was already existing. With regard to the exercise of that power, it would appear from the Hon'ble Member's remarks that if the Engineer could not do it on his own motion without further consultation or proceedings, he had only to determine the matter with the Collector. But the Council would see that strict provision had been made whereby notice was to be given to all parties in any way concerned in the construction of a new embankment; that with that notice the Engineer was bound to forward a statement showing the object of the embankment and its position in regard to the estates which it would benefit. Notice was then to be given to all parties concerned, and opportunity was afforded to them for raising objections. It was then the duty of the Collector fully to inquire into the matter and give his opinion in regard to those objections. If the Collector disagreed with the Engineer as to the utility or necessity of the work, the matter could be referred either by the Engineer or the parties concerned to the Commissioner of the division; or if the Collector agreed with the Engineer as to the necessity of the work, an appeal would still lie to the Commissioner, and from the decision of the Commissioner to the Board of Revenue, and, under the general supervision exercised by the Government, from the Board of Revenue to the Government. It would therefore be seen that the power given to the Engineer to construct new embankments was, as far as it could possibly be, sufficiently guarded by the safeguards laid down. It was not to be supposed that all these authorities would be actuated by insufficient motives. If the Engineer, actuated by professional motives, should think an embankment necessary, it was not to be supposed that the Collector would support him on insufficient grounds; and if the Collector supported the Engineer without sufficient grounds, it was not to be supposed that the Commissioner of the division and the Board of Revenue would assent to the proposition. In fact we had thrown over the consent of the Collector a power of appeal which might be thought by many extremely injudicious and a great hampering of the executive power. MR. SCHALCH did not think any one could deny honestly that cases might arise in which new embankments might be absolutely necessary. The Hon'ble Member had said that the zemindar had a right to make what embankments he liked; that the loss arising from the non-maintenance of embankments would be his own, and that any interference with his right was unjust and improper. Possibly there might be cases in which it would be necessary to interfere. A zemindar might do what was a matter of great interest to himself in a pecuniary

point of view, but what might result in great loss or injury to other parties. In cases of that kind we did want the interference of a third party to see justice done. One of the cases which gave rise to the introduction of the Bill was that of a zemindar who made a bund which benefited himself, but did great injustice to other parties, and resulted in inundation spreading largely throughout the adjoining land. Again, the zemindar was in many cases no longer a land owner but merely a receiver of rent, and consequently unable to carry out his alleged right to construct a new embankment even for his own interest. He might possibly have under him putneedars, durputneedars, and other putnee-holders in the third and fourth degrees, who might all object to the zemindar entering on their lands and to the construction of the bund. Consequently, if a new bund was wanted, and if it was left to the zemindar to make it, he might say he had no power to do so; he was merely a rent receiver. If therefore the Council were not prepared to say that in no case were new embankments to be made, the power given in section 6 must be maintained.

He would not go into the other questions upon which the Hon'ble Member remarked; they would be much better discussed when the amendments to which they referred came before the Council. MR. SCHALCH would now urge that the power here given was not a new one; that new embankments might in some cases be necessary; that circumstances might arise in which they could not be made by the zemindar, and that consequently some such power as that proposed to be given by the section under discussion must be placed in the hands of the Engineer. That being his opinion, he should certainly say that the portion of the section proposed to be omitted should be maintained.

HIS HONOR THE PRESIDENT adjourned the further consideration of the Bill to the next meeting of the Council.

The Council was adjourned to Saturday, the 15th instant.

CULTIVATION LEASES IN ASSAM.

No. 565, dated Calcutta, the 10th February 1873

From—J WARR FIDGAR, Esq, Officiating Junior Secretary to the Government of Bengal,
To—The Secretary to the Board of Revenue

I AM directed to acknowledge your letter No. 506A of the 30th December 1872, submitting a letter from Messrs Robertson, Orr, Harris, and Francis, in which they state that some of their clients contemplate the purchase of tea gardens in Assam held under annual leases, and wish to ascertain whether the cultivator, at the expiration of each year, has a right, legal or equitable, to the renewal of such lease.

2. In reply I am to point out that under chapter V of the Assam Settlement Rules, it is in the option of the occupant of any holding, the assessment of which has been fixed, to take a lease of it for any period not exceeding ten years (clause 1);* such lease, it will be observed, guarantees the occupant against any enhancement of the assessment during the period of its currency (clause 2);† and it is also heritable and transferable on the condition that all transfers are registered in the office of the Deputy Commissioner (clause 5).‡

Clause 5 of chapter IV§ provides that the settlement of all lands that are found occupied shall be made with the occupant ryots.

3. Messrs. Robertson, Orr, Harris, and Francis may therefore be informed that their clients can get, under chapter V, a ten years' lease of their tea lands, and that they can, under chapter IV clause 5, make sure of its renewal on the expiry of the term.

* When the assessment has been fixed in any holding, it shall be in the option of the occupant of such holding to take a lease of it for any period not exceeding ten years.

† A lease so given shall guarantee the occupant against any enhancement of the assessment during the period of its currency.

‡ Holdings so settled with the ryots shall be heritable and transferable on the condition that all transfers are registered in the office of the Deputy Commissioner.

§ The settlement of all lands which are found occupied shall be made with the occupant ryots, the rates of assessment shall be fixed for the term of the settlement, but shall be liable to alteration in future settlements.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>		1873.				
COOCH BEHAR DIV.	16 Darjeeling ..	Feb. 8th	.02	Fair	Wheat, barley and phaphur crops are progressing favorably in the hills. Cowrie and samah have just been sown. In the plains there are no crops at present; the land is being ploughed.	
	17 Julpigoree ..	" 8th	Nil.	Bright; much warmer	Tobacco, mustard, til, kulti dal, and thakri kalai, promising.	
	Cooch Behar ..	" 8th	Nil.	Fine	Sowing of cheena, and ploughing for early rice crop, are going on. Tobacco continues to promise well. Mustard seed will not probably be a very full crop.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca ...	" 11th*	Nil.	Weather fair and dry	Prospects of crops favorable. Rain wanted for early safflower, which is not likely to be good.	
	19 Furreedpore ..	" 8th	Nil.	Weather dry and cold	The rubee crop is suffering from the continued want of rain.	
	20 Backergunge ...	" 8th	Nil.	Cold and fair	Good. Paddy harvest pretty well over.	
	21 Mymensing ...	" 8th	Nil.	Weather generally fine and seasonable. No appreciable rainfall at sudder station; a fall of 0.8 reported at Altea sub-division.	Mustard has been gathered and has not been more than an average, though the area sown was larger than usual. Hardly any crops now on the ground but pulses and cheena. These are doing well, but would be better for a little rain.	Health of the district improved. Small-pox has not entirely disappeared.
	22 Sylhet ..	" 1st	Nil.	Generally cool. Hot now and then.	About 15 annas of the boro dhan have been planted out.	
	23 Cachar ..	" 1st	Nil.	Getting warmer	No crops on the ground.	
	24 Chittagong ..	" 1st	Nil.	Fine, but hazy. Wind generally from north.	Paddy crop gathered with a good outturn. Reports of cold weather crops (kalai, chillies, onions, sugarcane, &c.) are favorable.	Cholera still reported from the interior, but appears to be decreasing.
CHITTAGONG DIV.	25 Noakhally ...	" 1st	Nil.	Fair weather throughout the week. High north wind at noon. Extreme variations of temperature.	Cold weather crops good.	
	26 Tipperah ...	" 8th	Nil.	Fine	Cold weather crops promise well.	
	27 Chittagong Hill Tracts	Jan. 25th	Nil.	Cold and bracing	Cotton crop may be said to have been harvested. Mustard is ripening.	
	Hill Tipperah ..	Feb. 1st	Nil.	Dry, clear, and cold	Cotton crop good.	
BEHAR.						
PATNA DIV.	28 Patna ...	Feb. 11th.*	Nil.	Seasonable	Rubee crops doing well. Mustard, moosoor and peas are being reaped at some places.	Health of the district is good.
	29 Gaya ...	" 8th	Nil.	Fine, but rather cloudy	The rubee crops are doing well, though somewhat in want of rain in some places. Opium is doing well.	

* Telegram of the 11th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.—(Contd.)		1873.				
PATNA DIVN.—(Contd.)	30 Shahabad	Feb. 8th	Nil.	Weather warmer, cloudy, and threatening, with east wind to-day.	No particular change to note since last return. Crops are generally doing well.	
	31 Tirhoot	" 8th	Nil.	Cold and seasonable.	The rubees crops on the whole are promising, but rain is wanted. No change since last week.	
	32 Sarun	" 8th	Nil.	Fine and seasonable, but cloudy on Saturday.	The rubees crops are fair on the whole. Early mustard is being reaped. The poppy crop is in flower in some places.	
	33 Chumparun	" 8th	Nil.	Fair. Warm in the middle of the day.	The prospects of the rubees crops continue fair; but a little rain would be very beneficial, as the fields are in want of moisture.	
BHAUGULPORE DIVN.	34 Monghyr	" 8th	Nil.	Fair, growing warmer.	Continue very good indeed.	
	35 Bhaugulpore	" 11th	Nil.	Weather much warmer.	Rain wanted everywhere.	
	36 Purneah	" 8th	Nil.	Seasonable	A good deal of tori crop is now reaped. Khasarie, wheat, and tobacco, would be benefited by rain.	Fever does not seem to be quite so prevalent.
	37 Southal Pergunnahs...	" 8th	Nil.	Weather getting warm.	Mustard crop gathered. On the whole the yield has not been so good as the crop on the ground promised.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	...	...	.....	.....	Return not received.
	39 Pooree	" 1st	Nil.	Fine ...	Crops doing well. No change calling for notice.	
	40 Balasore	" 8th	Nil.	Seasonable	Flourishing.	
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
	41 Hazareobaugh	" 8th	Nil.	Slightly cloudy during the week, but no rain.	Crops promising, but would be benefited by a little rain.	Cholera reported as having made its appearance in Giridi. Small-pox still continues prevalent in various parts of the district.
	42 Loharduggah	" 8th	Nil.	Bright; morning and evening cold.	The crops in the sudder subdivision promise fairly, but a good shower of rain is wanted. The reports from Palamow show that the cereals are not doing well, whilst the pulses promise to be a good crop.	
	43 Singbhoom	" 1st	Nil.	Seasonable	Favorable	One case of small-pox in the town of Chaibasa reported.
	44 Maunbhoom	" 8th	Nil.	Fair, but warmer	Favorable.	
ASSAM AND ADJACENT HILLS.						
	45 Goalparah	" 1st	Nil.	Clear and dry, except 1st February, which is cloudy.	Pulses of all sorts have been reaped; outturn good. Cutting of mustard still continues. Cotton reported partially injured.	
	46 Kamroop	" 10th*	Nil.	The week was much warmer, and the days were occasionally cloudy.	Mustard seed is being gathered in and sugarcane being cut. Pulses promise well.	Public health good.

* Telegram of the 10th February received on the 11th.

No.	District.	Date of return from each district.	Rainfall atadder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ASSAM AND ADJACENT HILLS.—(Contd.)		1873.				
47	Durrung	Feb. 1st	Nil.	Cloudy and foggy; north-east wind prevailing.	The dhan crop is housed, and sugarcane is being crushed, and bids fair to turn out well.	
48	Nowgong	" 1st	Nil.	Clear, cool, and seasonable weather.	A bumper crop of kalai has been gathered in. The mustard and sugarcane crops promise well. Land being prepared in some places for the next year's dhan crop. Pruning of tea bushes still being carried on.	
49	Sebsaugor	" 1st	Nil.	The weather cold, with mornings generally foggy and evenings fair. Rains none.	Satisfactory	Cholera decreasing.
50	Luckimporo	" 1st	Nil.	Weather dry and warmer than last week; clouding up for rain towards the end of the week, and rain threatening on the 1st February. At North Luckimporo the weather is seasonable.	State of the crops favorable.	Public health good.
51	Naga Hills	Jan. 25th	0.01	Clear and fine throughout the district.	The hill men are busy in cutting their jooms.	
52	Khasi and Jynteah Hills.	Feb. 1st	Nil.	Temperature has been mild. Early in the week rain threatened, but it cleared off.	The people have commenced turning up the soil both in the high land and in the low grounds. There are no crops under cultivation.	
53	Garro Hills	.....	.....	.....	.....	Return not received.

Published for general information.

CALCUTTA,
The 11th February 1873.

H. J. S. CORTON,
Offg. Asst. Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from	Rain from	RAIN FROM 1ST		REMARKS.
			19th to 25th Jan. 1873.	25th Jan to 1st Feb. 1873.	INCHES.	Up to date.	
BENGAL.							
	WESTERN DISTRICTS.		Inches.	Inches.	Inches.	1873.	
BURDWAN.	Burdwan	Burdwan	Nil.	Nil.	Nil.	1st Feb.	
		Catwa	ditto	ditto	ditto	ditto	
		Culia	ditto	ditto	ditto	ditto	
		Bood-Bood	ditto	ditto	ditto	ditto	
	Bancoorah	Bancoorah	ditto	ditto	0.10	ditto	
		Jehanabad	ditto	ditto	Nil.	ditto	
		Bancoorah	ditto	ditto	ditto	ditto	
	Bierbhoom	Soree	ditto	ditto	0.02	ditto	
		Melnapore	0.18	ditto	0.18	ditto	
	Midnapore	Fumlook	0.50	ditto	0.50	ditto	
		Gurbetta	Nil.	ditto	Nil.	ditto	
			{ Dy. Collr.'s Office	ditto	Not rec.	ditto	25th Jan.
		{ Exe. Engr.'s Office	Not rec.	ditto	ditto	4th Jan.	
	Hooghly	Hooghly	il	Nil.	ditto	1st Feb.	
	Howrah	Serampore	0.05	ditto	0.05	ditto	
	Howrah	Howrah	0.05	ditto	0.05	ditto	
	CENTRAL DISTRICTS						
PRESIDENCY.	24-Perannahs	Saugor Island	Nil.	ditto	Nil.	ditto	
		Calcutta	ditto	ditto	ditto	ditto	
		Alipore	0.10	ditto	0.10	ditto	
		Alipore Jail	Nil.	ditto	Nil.	ditto	
		Busseerhaut	ditto	ditto	ditto	ditto	
		Barrack	ditto	ditto	ditto	ditto	
		Dumond Harbour	0.45	ditto	0.45	ditto	
		Barrapore	Nil.	ditto	Nil.	ditto	
		Satkerah	0.20	ditto	0.20	ditto	
		Barrackpore	0.07	ditto	0.07	ditto	
		Dum-Dum	Nil.	ditto	Nil.	ditto	
		Kishina-chur	ditto	Not rec.	ditto	25th Jan.	
	Bongong	0.11	ditto	0.11	ditto		
	Nuddea	Nil.	ditto	Nil.	ditto		
	Melherpore	ditto	ditto	ditto	ditto		
	Choodangrah	ditto	ditto	ditto	ditto		
	Kooshita	0.24	ditto	0.24	ditto		
	Ranghat	Nil.	ditto	Nil.	ditto		
	Jessore	0.16	ditto	0.16	1st Feb.		
	Nural	0.80	ditto	0.80	ditto		
	Khoolneah	Nil.	ditto	Nil.	ditto		
	Jenidah	ditto	ditto	ditto	ditto		
	Bazirhaut	Not rec.	Not rec.	ditto	18th Jan.		
	Magoorah	Nil.	Nil.	ditto	1st Feb.		
RAJSHAHYE.	Moorsheedabad	Berhampore	0.10	ditto	0.20	ditto	
		Ramporehaut	Nil.	ditto	Nil.	ditto	
		City Moorsheedabad	0.07	ditto	0.14	ditto	
		Junpore	0.40	ditto	0.83	ditto	
	Dinapore	0.08	ditto	0.13	ditto		
	Maldah	Nil.	ditto	0.50	ditto		
	Rajshahye	0.18	ditto	0.43	ditto		
	Rangpore	0.25	ditto	0.48	ditto		
	Bograh	0.23	ditto	0.51	ditto		
	Pubna	Nil.	ditto	0.05	ditto		
	Pubna	ditto	ditto	Nil.	ditto		
	Pubna	ditto	ditto	0.20	ditto		
Pubna	0.22	ditto	0.22	ditto			
Pubna	0.06	ditto	0.06	ditto			
Pubna	0.07	0.10	0.17	ditto	Not received 5th to 18th January.		
COCH BEHAR.	Darjeeling	Darjeeling { Telegraph Office	Not rec.	Not rec.	Nil.	15th Jan.	
		Darjeeling { Hospital	Nil.	0.02	0.02	1st Feb.	
	Julpigoree	Julpigoree	ditto	Nil.	0.05	ditto	
	Cooch Behar Tributary State	Falacotta	ditto	ditto	0.14	ditto	
Rhutan Dooree	Buda	ditto	ditto	Nil.	ditto		
Cooch Behar	Cooch Behar	ditto	ditto	ditto	ditto		
Buxa	Buxa	ditto	ditto	0.44	ditto		
EASTERN DISTRICTS.							
DACCA.	Dacca	Dacca { Telegraph Office	ditto	ditto	Nil.	ditto	
		Dacca { Hospital	ditto	ditto	ditto	ditto	Not received 12th to 18th January.
		Dacca	ditto	ditto	ditto	ditto	Ditto ditto.
		Dacca	ditto	ditto	ditto	ditto	Ditto ditto.
	Furcedpore	Furcedpore	ditto	ditto	ditto	ditto	
		Furcedpore	ditto	ditto	ditto	ditto	
		Goalundo	ditto	ditto	ditto	ditto	
	Bakergunge	Burrisaul	0.50	ditto	0.50	ditto	
		Perzepore	Nil.	ditto	Nil.	ditto	
		Mudripore	0.05	ditto	0.05	ditto	
		Patookhully	Not rec.	ditto	Nil.	ditto	Not received 19th to 25th Jan.
	Dowlat Khan	Dowlat Khan	0.22	ditto	0.22	ditto	
Mymensing	Mymensing	Nil.	ditto	0.10	ditto		
	Jamshpore	ditto	ditto	Nil.	ditto		
	Atsch	0.20	ditto	0.24	ditto		
Sylhet	Kashoregunge	0.20	ditto	0.20	ditto		
	Sylhet	0.13	ditto	0.83	ditto	Not received 1st to 4th Jan.	
Cachar	Cachar	Nil.	ditto	1.04	ditto		
	Hylakandy	0.70	Not rec.	1.60	25th Jan.	Not received 1st to 11th Jan.	
	Koyah	Nil.	ditto	0.47	ditto		
CHITTAGONG.	Chittagong	Chittagong { Telegraph Office	0.10	Nil.	0.20	1st Feb.	
		Chittagong { Jail	0.12	ditto	0.35	ditto	
	Chittagong Hill Tracts	Cox's Bazar	Nil.	Not rec.	0.90	25th Jan.	
	Naoshally	Rumamutee Hill	ditto	Nil.	0.40	1st Feb.	
	Tipperah	Naoshally	0.01	ditto	0.01	ditto	
Hill Tipperah	Cemillah	Nil.	ditto	Nil.	ditto		
Hill Tipperah	Brahmanbariah	0.92	ditto	0.92	ditto		
Hill Tipperah	Hill Tipperah	0.29	ditto	0.29	ditto		

DIVISION.	DISTRICT.	STATION.	Rain from 19th to 25th Jan. 1873.	Rain from 26th Jan. to 1st February 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.
					Inches.	Up to date.	
PATNA.	BEHAR.		Inches.	Inches.	Inches.	1873.	
		Patna	0.01	0.02	0.21	1st Feb.	
	Behar	0.16	Nil.	0.53	ditto.		
	Barh	0.11	ditto.	0.11	ditto.		
	Dinapore	{ Jail	Nil.	ditto.	0.21	ditto.	
		{ Cautonment	ditto.	ditto.	Nil.	ditto.	
	Gya	Gya	0.11	ditto.	0.17	ditto.	
		Nowadah	0.23	ditto.	0.33	ditto.	
	Shahabad	Arunnabad	0.12	ditto.	0.12	ditto.	
		Jehanabad	Not rec.	Not rec.	0.19	1st Jan.	
	Tirhoot	Arrah	Nil.	Nil.	0.32	1st Feb.	
		Sasernan	ditto.	0.11	0.11	ditto.	
	Sarun	Buxar	0.10	0.10	0.40	ditto.	
		Bluhoonh	Nil.	Nil.	Nil.	Not received 5th to 11th Jan.	
	Chumparan	Mozafferpore	ditto.	ditto.	2.20	ditto.	
		Durbangah	ditto.	ditto.	0.62	Not received 1st to 4th January.	
	Mouhyr	Hajipore	ditto.	Not rec.	0.15	24th Jan.	
		Mudhubani	ditto.	ditto.	0.18	ditto.	
	Saran	Seetamarree	ditto.	Nil.	0.29	1st Feb.	
		Tajpore	Not rec.	ditto.	0.25	ditto.	Not received 1st to 4th and 12th to 25th January.
Chumparan	Chuprah	0.10	ditto.	0.29	ditto.		
	Sewan	0.10	Not rec.	0.34	25th Jan.	Not received 1st to 4th January.	
Mouhyr	Moteehari	0.89	Nil.	0.99	1st Feb.		
	Beltiah	Nil.	0.25	0.25	ditto.		
BHAUGULPORE.	Bhaugulpore	Mouhyr	0.13	Nil.	0.34	ditto.	
		Legoseral	0.47	ditto.	0.47	ditto.	Not received 5th to 11th January.
Purneah	Jamooie	0.20	ditto.	0.46	ditto.		
	Bhaugulpore	0.17	ditto.	0.40	ditto.		
Sonthal Pergumabih	Soopool	Nil.	ditto.	Nil.	ditto.		
	Mudheypoorah	ditto.	ditto.	ditto.	ditto.		
Purneah	Banka	0.70	ditto.	0.70	ditto.		
	Purneah	0.27	ditto.	0.27	ditto.		
Sonthal Pergumabih	Kshengungo	Nil.	ditto.	Nil.	ditto.		
	Arrarah	ditto.	ditto.	ditto.	ditto.		
Sonthal Pergumabih	Doughur	0.07	ditto.	0.29	ditto.		
	Jamitara	Nil.	ditto.	Nil.	Not received 5th to 11th January.		
Sonthal Pergumabih	Rajmahal	ditto.	ditto.	ditto.	ditto.		
	Pakour	ditto.	ditto.	ditto.	ditto.		
ORISSA.	Cuttack	Vea-Doomka	0.17	ditto.	0.26	ditto.	
		Godda	0.51	ditto.	0.62	ditto.	
ORISSA.	Cuttack	Cuttack { Telegraph Office	Nil.	Nil.	Nil.	ditto.	
		{ Hospital	ditto.	ditto.	ditto.	ditto.	
ORISSA.	Cuttack	Jajipore	ditto.	ditto.	ditto.	ditto.	
		Kendrapara	ditto.	ditto.	ditto.	ditto.	
ORISSA.	Pooree	Juentsungpore	0.76	ditto.	0.75	ditto.	
		Pake Point	Nil.	ditto.	Nil.	ditto.	
ORISSA.	Balasore	Pooree	ditto.	ditto.	ditto.	ditto.	
		Khoordah	0.02	0.03	0.05	ditto.	
ORISSA.	Cuttack Tributary	Balasore	Nil.	Nil.	Nil.	ditto.	
		Bhuddruck	ditto.	ditto.	ditto.	ditto.	
CHOTA NAGPORE—	SOUTH-WESTERN FRONTIER AGENCY.	Sambalpore	Not rec.	Not rec.	.....	.....
		Hazarrebaugh	Nil.	Nil.	Nil.	1st Feb.	
CHOTA NAGPORE—	SOUTH-WESTERN FRONTIER AGENCY.	Hazarrebaugh { Jail	ditto.	ditto.	ditto.	ditto.	
		{ Dispensary	ditto.	ditto.	ditto.	ditto.	
CHOTA NAGPORE—	SOUTH-WESTERN FRONTIER AGENCY.	Pachumba	ditto.	ditto.	ditto.	ditto.	
		Ranehee	ditto.	ditto.	ditto.	ditto.	
CHOTA NAGPORE—	SOUTH-WESTERN FRONTIER AGENCY.	Palmow	ditto.	ditto.	ditto.	ditto.	
		Singhoom	0.19	ditto.	0.19	ditto.	
CHOTA NAGPORE—	SOUTH-WESTERN FRONTIER AGENCY.	Mambloom	Nil.	ditto.	Nil.	ditto.	
		Gobindpore	ditto.	Not rec.	ditto.	25th Jan.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Goniparah	ditto.	ditto.	ditto.	ditto.	
		Dhobree	ditto.	ditto.	ditto.	ditto.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Kamroop	ditto.	Nil.	0.14	1st Feb.	
		Burpettah	ditto.	ditto.	0.50	ditto.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Durrung	ditto.	Not rec.	0.11	25th Jan.	
		Te-pore	ditto.	ditto.	0.23	ditto.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Nowgong	ditto.	Nil.	0.05	1st Feb.	
		Nowgong	ditto.	Not rec.	1.21	25th Jan.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Sechsangor	ditto.	ditto.	0.67	ditto.	
		Sechsangor	ditto.	ditto.	1.96	ditto.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Luckimpore	Not rec.	ditto.	.....	.....
		Luckimpore	ditto.	ditto.	0.23	13th Jan.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Luckimpore	Nil.	ditto.	0.89	7th Jan.	
		Luckimpore	Not rec.	ditto.	1.60	13th Jan.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Naga Hills	ditto.	ditto.	.....	.....
		Naga Hills	Nil.	ditto.	Nil.	25th Jan.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Khasi and Jynteah Hills.	ditto.	ditto.	2.40	ditto.	
		Khasi and Jynteah Hills.	ditto.	ditto.	0.21	ditto.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Garohills	ditto.	ditto.	0.43	ditto.	
		Garohills	ditto.	Nil.	Nil.	1st Feb.	
ASSAM & ADJACENT HILLS.	ASSAM & ADJACENT HILLS.	Garohills	ditto.	ditto.	0.70	ditto.	
		Garohills	ditto.	ditto.	0.70	ditto.	

CALCUTTA,
The 8th February 1873.

H. F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 2nd to 8th February 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. = 100.	WIND.		Rain.	Clouds.	Weather initials.	
					Dry.	Wet.		Direction.	Velocity.				
CALCUTTA.	2nd Feb.	10	30.100	30.129	73.2	63.0	61						
		16	30.115	30.033	78.0	62.6	37	N N E	...		CS		
	3rd	10	30.103	30.212	71.0	61.4	65	N N W	...			b	
		16	30.057	30.075	77.5	62.2	37	N E	...			b	
	4th	10	30.112	30.131	66.4	60.0	66	N E	...			b	
		16	29.968	29.987	71.6	63.0	49	N N E	...		S, CK		
	5th	10	30.000	30.079	68.0	61.0	60	N W	...		CS		
		16	29.891	29.903	79.0	63.0	36	N W	...			b	
	6th	10	30.065	30.084	72.5	62.0	62	N W	...			b	
		16	29.910	29.934	81.0	64.2	27	W N W	...			b	
	7th	10	30.057	30.056	72.0	66.5	73	W N W	...			b	
		16	29.931	29.957	81.2	67.3	44	W N W	...			b	
	8th	10	30.072	30.090	75.5	69.3	70	W N W	...			b	
		16	29.954	29.972	83.6	70.4	49	W by N	...			b	
	SALGON ISLAND.	2nd Feb.	10	30.100	30.116	75	65	65	N N E	9.1			
			16	30.069	30.015	74	61	39	N N E	15.8		C	
3rd		10	30.184	30.190	74	60	39	N E	6.7			b	
		16	30.052	30.058	74	61	32	N E	11.2			b, m	
4th		10	30.114	30.120	69	61	61	N	6.8		N	b, m	
		16	29.993	30.001	71	63	47	N N W	6.6			b, m	
5th		10	30.072	30.078	72	61	49	N N W	2.5			b	
		16	29.914	29.910	79	64	42	W S W	5.9		C	b	
6th		10	30.080	30.086	73	63	67	N W	4.5			b	
		16	29.815	29.911	78	66	49	W S W	8.4			b	
7th		10	30.041	30.067	76	72	81	W	0.4			b	
		16	29.959	29.965	79	71	65	S W	6.1		C	b	
8th		10	30.043	30.049	78	71	81	W S W	4.2		C	b	
		16	29.874	29.980	79	72	69	S W	6.1			b	
CHITTAGONG.		2nd Feb.	10	29.978	30.072	75	66	69	N	4.9			b, m
			16	29.912	30.005	82	67	47	W N W	5.6			b, m
	3rd	10	30.046	30.141	71	61	45	N E	6.1			b, m	
		16	29.920	30.013	81	67	44	W	6.8			b, m	
	4th	10	30.094	30.094	71	65	62	N	4.1			b, m	
		16	29.850	29.914	76	68	64	W	6.0		KS	b, m	
	5th	10	29.904	29.939	79	65	63	N N E	3.2			b, m	
		16	29.812	29.905	79	64	40	W S W	11.0			b, m	
	6th	10	29.957	30.054	70	62	61	N	4.4			b	
		16	29.835	29.910	77	64	45	W	7.1			b	
	7th	10	29.961	30.064	71	63	61	N N E	6.1			b, m	
		16	29.892	29.975	81	65	38	W	9.4			b, m	
	8th	10	29.979	30.074	71	64	63	N N E	5.7			b, m	
		16	29.861	29.955	82	64	32	W	8.1			b	
	MADRAS.	1st Feb.	10	30.010	30.070	79	73	73	N E by N	10			cloudy
			16	29.905	29.945	81	72	62	N N E	15			cloudy
2nd		10	30.015	30.045	78	73	77	N N E	10			cloudy	
		16	29.915	29.915	80	73	70	N by E	14			cloudy	
3rd		10	30.035	30.065	77	71	56	E N E	13	0.89		cloudy	
		16	29.913	29.983	75	73	99	N E by E	16	0.37		cloudy	
4th		10	30.041	30.111	73	71	99	E S E	4	3.58		c	
		16	29.971	30.001	75	73	90	E N E	6	1.27		c	
5th		10	30.040	30.070	76	74	90	E N E	4	0.17		c	
		16	29.909	29.931	81	75	75	E N E	9			cloudy	
6th		10	30.045	30.075	82	75	70	E N E	10			c	
		16	29.924	29.954	81	74	66	E by N	10			c	
7th		10	30.047	30.077	79	72	69	E N E	3			c	
		16	29.942	29.972	81	71	69	E by N	7			c	
CUTTACK.		1st Feb.	10	29.994	30.077	79	65	43	S E	1.0			b
			16	29.883	29.925	87	68	33	E N E	2.6			b
	2nd	10	30.014	30.097	79	66	47	N W	1.3			b	
		16	29.923	30.001	81	69	33	N	4.5		K	b	
	3rd	10	30.104	30.187	77	60	31	N N E	1.7			b	
		16	29.976	30.051	82	61	23	N	6.6			b	
	4th	10	30.067	30.166	71	61	53	N N W	1.6		KS, C	b	
		16	29.911	30.014	78	62	35	N	2.0		CK, C	b	
	5th	10	29.992	30.076	74	61	43	N N E	0.6			b	
		16	29.836	29.908	85	65	59	N N E	2.2			b	
	6th	10	30.000	30.092	76	66	56	W N W	0.9			b	
		16	29.836	29.918	86	65	27	W N W	2.8			b	
	7th	10	29.974	30.057	74	68	57	W	0.8			b	
		16	29.861	29.933	87	67	30	N N E	3.5			b	
	ARAB.	2nd Feb.	10	30.015	30.037	79	69	68	N E	0.7			
			16	29.949	29.971	81	72	62	W S W	1.1			b
3rd		10	30.065	30.087	80	69	54	N E	1.0			b	
		16	29.976	29.998	79	70	61	W N W	2.3			b	
4th		10	30.053	30.075	76	67	60	E N E	1.5			b	
		16	29.929	29.951	79	61	61	S W	1.0			b	
5th		10	29.985	30.067	77	64	69	N E	0.3			b	
		16	29.864	29.886	78	66	49	W N W	1.5			b	
6th		10	30.000	30.055	74	67	61	N E	0.4			b	
		16	29.884	29.896	74	67	53	W	4.6			b	
7th		10	30.018	30.041	71	67	67	E N E	0.5			b	
		16	29.926	29.948	78	67	63	N E	2.0			b	
8th		10	30.025	30.047	76	67	60	N N E	0.3			b	
		16	29.922	29.944	81	71	69	S W	2.5			b	

* Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 1st to 7th February 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed. mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevaling direction.	Max. pressure.	Daily velocity.		
Feb. ...	1st	29.994	82.4	61.5	131.0	71.4	63.0	57.0	0.64	NE & NW	...	70.0	...	Clear.
	2nd	30.036	78.7	64.5	131.2	70.4	62.4	56.0	.62	NW & NE	...	68.2	...	Chiefly clear. Slightly foggy from 8 to 10 P.M.
	3rd	30.106	78.5	60.0	131.8	68.7	60.3	53.6	.61	NE	...	120.6	...	Clear and brisk.
	4th	30.042	71.6	59.5	125.0	66.2	59.8	54.7	.68	NE & W by N	...	124.5	...	Cirrocumuli; stratioid and clear.
	5th	29.972	70.4	57.0	135.0	67.7	60.2	54.2	.61	WNW & N	...	60.2	...	Clear. Slightly foggy from 7 to 9 P.M.
	6th	30.073	80.8	59.0	133.3	69.4	61.6	55.4	.63	NW	...	41.4	...	Clear. Slightly foggy at 7 and 8 A.M., 8 and 9 P.M.
	7th	30.082	82.0	60.4	138.0	70.7	64.3	59.2	.63	W & WNW	...	34.5	...	Clear. Slightly foggy 5 and 7 A.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	24.5
The max. temperature during the past seven days	...	82.4
The max. temperature during the corresponding period of the past year	...	82.7
The mean humidity during the past seven days	...	0.64
The mean humidity during the corresponding period of the past year	...	0.75
The total fall of rain from 1st to 7th	{ by lower rain gauge	Nil.
	{ by anemometer gauge	Nil.
Ditto ditto ditto	average of nineteen previous years	0.18
Ditto ditto between the 1st January and the 7th February		Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	0.60

GOPKENDATH SEN,
In charge of the Observatory.

The 10th February 1873.

GOVERNMENT OF BENGAL.
PUBLIC WORKS DEPARTMENT,—IRRIGATION BRANCH.

RAINBEE SEASON 1872, COMMENCING ON THE 1ST DECEMBER 1872.

Irrigation Operations of Lower Bengal during the month of December 1872.

Circle.	District.	Canal.	WATER SUPPLIED DURING 1872.		DARKA RICE CULTIVATION.		TANJORE, CUTTACK, HULDER, GINGEE, WAREAH, AND GARDENS PER ACER.		OIL SEEDS AND PULSES.		SUGAR-CANE AND OTHER CROPS.		RAINFALL.		REMARKS.							
			Estimated for discharge in cubic feet per second.	Average discharge in cubic feet per second.	Area leased up to the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Inches during month.	Average of ten previous years for the same period.								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Orissa ...	Bhuban	...	675	233	...	...	1	...	...	1	...	...	...	...	...	...	...	...	0.02	76.00	60.80	(a) Shown in columns 11 and 12 of the November Statement.
	Ditto	Kendrapah	...	...	...	...	139	...	17	155	1	1	2	...	...	...	157	...	0.02	76.00	66.80	Canal closed for repairs the greater part of the month.
	Ditto	Talanda	1,350	Nil	...	...	1	...	...	...	1	...	...	...	...	...	1	...	0.02	76.00	66.83	Ditto.
	Ditto	Marigong	650	Nil	0.02	76.00	66.98	Ditto.
South-Western.	Midnapore	...	6.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01	56.27	Not available.	Ditto.
	Howrah	Panchkoerah	210	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	36.95	Ditto	Ditto.
Total			140	17	157	2	1	2	...	...	...	...	...	...	...	...	159	...	...	...	...	...

F. T. HAIG, Lieut.-Colonel, R. E.,
Offg Joint-Secretary to the Government of Bengal
in the P. W. Dept., Irrigation Branch.

The 5th February 1873.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Brahmince Division High Level Canal for the month of December 1872.

LENGTH OF CANAL OPEN—37 MILES.

Number of boats.	LOCAL TRAFFIC.										STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.				
	APPROXIMATE		TONNAGE EXCLUSIVE OF		Ton mile- age.	Tollage.	No. of boats or rafts.	Nature of cargo.	APPROXIMATE		TONNAGE EXCLUSIVE OF		Ton mile- age.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Ponnage of empty boats.	Ton mileage	Tollage.				
	Weight of cargo.	Value of cargo.	Maunds.	Tons.					Weight of cargo.	Value of cargo.	Maunds.	Tons.													
1 Provision	5	20	54	1	29	0 4 6	2	Rs.	Mds.	80	2,178	78	10 8 0	15	Private Mer- chandise	68	208	5	87	6 4 0					
1 Tent	10	100	37	1	45	0 7 0	1	Rs.	Mds.	300	453	17	7 3 0	17	Govt. Stores &c.	1,150	380	95	491	52 2 6					
1 Paddy	28	28	45	2	1	0 3 2	14	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1 Yam	20	60	28	1	12	0 1 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8 Empty	...	...	...	...	...	2 8 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
3 Passenger	...	...	...	...	...	2 11 4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	63	208	134	5	87	6 4 0	17	1,150	380	2,661	95	491	52 2 6	32	1,213	689	100	578	58 6 6						

The canal has been closed for repairs from the 15th December 1872.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

SOUTH-WESTERN CIRCLE.

Statement showing the amount of Traffic and Tolls on the Hidgelee Tidal Canal for the month of December 1872.

LENGTH OF CANAL OPEN—26 MILES.

LOCAL TRAFFIC.		ABSTRACT.										
Number of boats.	Nature of cargo.	APPROXIMATE TONNAGE EXCLUSIVE OF EMPTY BOATS.		Tonnage exclusive of empty boats.	Ton mileage.	Tollage.	Remarks.	Rs. A. P.	Tollage.	Ton mileage.	Tollage.	
		Weight of cargo, Mds.	Value of cargo, Rs.									
9	Pottery	No.	Rs.	Mds.	Rs.	8,922	18,326	811	21,078	182	2	3
3	Bambos	11,000	137	1,135	...	...	...	...	...	...	...	...
1	Cocunut's	2,100	294	...	...	...	...	...	...	...	...	...
3	Plantains	3,000	60	160	...	...	...	...	...	...	...	...
20	Timbers	1,580	40	160	...	...	...	...	...	...	...	...
14	Is-sengars	85	1,738	70	...	...	...	...	...	...	...	...
113	Empty boats	85	...	1,115	...	...	...	...	...	...	...	...
13	Tobacco	...	...	...	...	...	...	...	...	...	...	...
4	Salt	...	...	...	...	...	...	...	...	...	...	...
4	Miscellaneous	...	...	...	...	...	...	...	...	...	...	...
1	Spices	70	200	285	...	...	...	...	...	...	...	...
10	Grains	80	800	125	...	...	...	...	...	...	...	...
1	Oil cake	437	2,222	945	...	...	...	...	...	...	...	...
3	Berel	20	20	50	...	...	...	...	...	...	...	...
4	Firewood	95	110	170	...	...	...	...	...	...	...	...
2	Gurru Liles	695	163	1,270	...	...	...	...	...	...	...	...
1	Sugar	800	50	875	...	...	...	...	...	...	...	...
3	Carbon	40	400	575	...	...	...	...	...	...	...	...
89	Paddy	1-0	3,250	605	...	...	...	...	...	...	...	...
8	Sand	2,456	2,082	4,310	...	...	...	...	...	...	...	...
1	Jute	665	68	1,036	...	...	...	...	...	...	...	...
1	Thread	1,450	74	3,326	...	...	...	...	...	...	...	...
21	Rice	60	175	200	...	...	...	...	...	...	...	...
15	Vegetables	6	300	25	...	...	...	...	...	...	...	...
1	Shell Lime	588	555	1,165	...	...	...	...	...	...	...	...
2	Pine-ka	78	164	380	...	...	...	...	...	...	...	...
2	Humal wood	12	4	30	...	...	...	...	...	...	...	...
2	Water	86	85	175	...	...	...	...	...	...	...	...
1	Crackie or shell-fish	150	110	45	...	...	...	...	...	...	...	...
300		200	50	475	...	...	...	...	...	...	...	...
		8,922	18,326	22,700	811	21,078	182	2	3			

Tonnage shown above is of the boats not of the cargo.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

SOUTH-WESTERN CIRCLE.

Cossye Division.

Statement showing the amount of Traffic and Tolls on the Midnapore Section of the High-Level Canal for the month of December 1872.

LENGTH OF CANAL OPEN—24 MILES.

LOCAL TRAFFIC.										STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.				
Number of boats.	Nature of cargo.	Approximate weight of cargo.	Approximate value of cargo.	TOTAL EXCLUSIVE OF EMPTY BOATS.		Ton mileage.	Tollage.	Number of boats or rafts.	Nature of cargo.	Approximate weight of cargo.	Approximate value of cargo.	TOTAL EXCLUSIVE OF EMPTY BOATS.		Ton mileage.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Total exclusive of tonnage of empty boats.	Ton mileage.	Tollage.	REMARKS.	
				Mds.	Rs.							Mds.	Rs.											Mds.	Rs.
37	Coal	164.0	5,451	29,200	185 10 0	2	Furnitures...	20	140	135	...	0 11 0	1,631	Local	49,276	4,51,340	4,526	39,004	1,166	6 6	Rs. A. P.	Tolls for same month in previous year were Rs. 924-9-2. opened from 22nd Dec. 1872.
14	Canton	1,195	34,800	3,070	...	...	13 11 0	1	Empty boat	...	...	...	...	0 9 0	...	...	...	...	...	...	31	1 4 0	...
3	Firewood	691	248	1,256	...	...	4 9 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
45	Grain	3,680	59.2	8,023	...	...	39 3 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	Hides and horns	1,007	13,100	2,394	...	...	18 7 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
8	Jaggery and sugar	480	1,470	1,270	...	...	6 8 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	Metal	755	27,900	1,855	...	...	9 15 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
19	Miscellaneous	4,195	15,495	18,175	...	...	85 3 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	Oil and oilseeds	2,473	12,675	5,575	...	...	23 12 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
64	Paddy and rice	5,365	6,890	11,959	...	...	48 12 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
44	Thread	1,181	1,258.3	9,279	...	...	33 11 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	Garden produce	2,395	98,579	8,150	...	...	41 10 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
22	Pottery	638	6.8	50.0	...	...	24 9 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
23	Salt	3,690	703	4.65	...	...	50 7 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Silk and indigo	310	15,170	7,906	...	...	56 1 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
7	Straw	620	75.32	2.75	...	...	12 8 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
2	Tobacco	290	1,940	1,500	...	...	6 10 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	Tea	309	309	425	...	...	1 9 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6	Timber	1,775	7,751	8,150	...	...	19 7 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
9	Refits of timber	735	60	1.35	...	...	6 13 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
147	Empty boats	...	485	Logs 48	...	...	5 12 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
899	Passengers	...	...	...	...	...	67 10 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Ditto	...	...	...	...	...	89 15 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Miscellaneous Revenue.	...	...	...	...	...	367 4 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14	Police boats	...	...	...	...	...	20 7 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,631		49,276	4,51,340	1,23,725	4,626	89, 04	1,166 6 6	3		20	140	126	4 31	1 4 0	1,637		49,296	4,51,430	4,530	39,035	1,167 10 6			

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Kendraparah Canal for the month of December 1872.

LENGTH OF CANAL OPEN—42 MILES.

LOCAL TRAFFIC.										STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.				
Number of boats.	Nature of cargo.	APPROXIMATE.		Ton mileage.	Tollage.	Number of boats or Tons.	Nature of cargo.	APPROXIMATE.		Ton mileage.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Ton mileage.	Tollage.	Remarks.						
		Weight of cargo.	Value of cargo.					Weight of cargo.	Value of cargo.															
1	Black Grain	Mds.	650	...	Rs. A. P.	1 10 0	1	Dry fish	...	640	64	...	...	...	...	...	...	...	...
1	Oil-cake	...	300	...	Rs. A. P.	0 13 0	3	Empty	...	...	...	...	...	...	...	...	...	...	...
1	Empty	...	...	...	Rs. A. P.	0 4 0	...	...	...	...	...	...	...	...	...	...	...	...	...
3	.....	...	950	...	Rs. A. P.	2 10 0	4	...	...	510	54	2	...	...	...	...	...	...	...
				493	18	18	7	...	...	1,498	0	0	50	261	8	10	0	The canal was closed for repairs from 4th December 1872.				

F. T. HAIG, Lieut.-Colonel, R. E.,
Offg. Joint-Secretary to the Government of Bengal
in the P. W. Dept., Irrigation Branch.

Weekly Return of Traffic Receipts on Indian Railways.

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 25th January 1873, on 28 miles open.

	COACHING TRAFFIC.				MERCHANDISE AND MINERAL TRAFFIC.				Total receipts.										
	Number of passengers.	Coaching receipts.			Weight carried.	Receipts.													
		Rs.	As.	P.	£	s.	d.	Mds.	Srs.	Rs.	As.	P.	£	s.	d.	£	s.	d.	
Total traffic for the week	7,700	1,176	0	0	117	12	0	10,814	0	517	0	0	51	14	0	169	6	0	
Or per mile of railway	275	42	0	0	4	4	0	386	0	18	0	0	1	16	0	8	0	0	
For previous 3 weeks of half-year ...	26,155	3,083	0	0	300	6	0	39,701	0	1,175	0	0	117	10	0	477	16	0	
Total for 4 weeks	33,855	4,779	0	0	477	18	0	50,515	0	1,692	0	0	169	4	0	647	2	0	
COMPARISON.																			
Total for corresponding week of previous year	8,255	1,129	8	9	112	19	1	23,873	20	373	15	0	37	5	11	160	5	0	
Per mile of railway corresponding week of previous year	295	40	5	2	4	0	8	852	18	13	5	1	1	6	8	5	7	4	
Total to corresponding date of previous year	34,359	4,647	13	0	464	15	8	60,050	0	1,435	9	0	143	11	2	608	6	10	

EASTERN BENGAL RAILWAY.

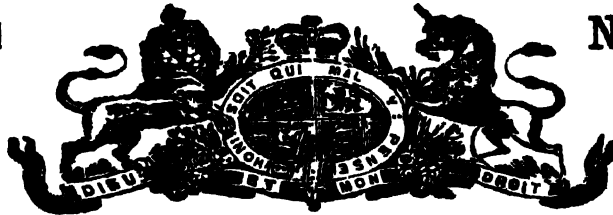
Approximate Return of Traffic for week ended 25th January 1873, on 156½ miles open.

		Rs.	A.	P.	£	s.	d.	Mds.	Srs.	Rs.	A.	P.	£	s.	d.	£	s.	d.	
Total traffic for the week	29,641½	28,383	11	0	2,602	15	1	116,917	27	23,653	9	9	2,168	4	11	4,771	0	0	
Or per mile of railway	189	181	6	11	16	12	8	747	0	151	2	3	13	17	1	30	9	9	
For previous 2 weeks of half-year ...	75,534½	60,472	4	6	5,543	5	10	210,604	35	50,886	12	3	5,214	12	4	10,787	18	2	
Total for 4 weeks	105,175	88,855	15	6	8,146	0	11	327,522	23	80,540	6	0	7,382	17	5	15,528	18	2	
COMPARISON.																			
Total for corresponding week of previous year	38,138½	21,334	9	3	1,955	13	5	138,487	33	26,465	7	8	2,425	16	4	4,381	9	9	
Per mile of railway corresponding week of previous year	244	136	5	2	12	9	11	885	0	169	1	6	15	10	0	27	19	11	
Total to corresponding date of previous year	127,581	77,462	10	2	7,100	14	10	382,254	28	80,579	14	0	7,386	9	9	14,487	4	7	

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 1st February 1873, on 28 miles open.

		Rs.	A.	P.	£	s.	d.	Mds.	Srs.	Rs.	A.	P.	£	s.	d.	£	s.	d.	
Total traffic for the week	8,808	1,292	0	0	129	4	0	18,101	0	632	0	0	63	4	0	192	8	0	
Or per mile of railway	315	46	0	0	4	12	0	648	0	23	0	0	2	6	0	6	18	0	
For previous 2 weeks of half-year ...	33,855	4,779	0	0	477	18	0	50,515	0	1,692	0	0	169	4	0	647	2	0	
Total for 5 weeks	42,663	6,071	0	0	607	2	0	68,616	0	2,324	0	0	232	8	0	839	10	0	
COMPARISON.																			
Total for corresponding week of previous year	8,232	1,186	3	6	118	12	5	15,047	20	466	2	0	46	12	3	165	4	8	
Per mile of railway corresponding week of previous year	294	42	5	10	4	4	9	569	0	16	10	0	1	13	3	5	18	0	
Total to corresponding date of previous year	42,591	5,834	0	6	583	8	1	75,997	20	1,901	11	0	190	3	5	773	11	6	



SUPPLEMENT TO
The Calcutta Gazette.

WEDNESDAY, FEBRUARY 19, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post

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RESOLUTIONS ON THE REGISTRATION, MEDICAL, AND JAIL BUDGETS.

PROVINCIAL SERVICE.

FINANCIAL DEPARTMENT.

Calcutta, the 27th December 1872.

READ—

Letter No 709C, dated 21st December, from the Accountant-General, submitting the Registration budget for the year 1873-74

RESOLUTION.—The Lieutenant-Governor accents the budget estimate, as submitted by the Accountant-General, with the following alterations, namely:—

- (1) *Office rent in Calcutta.*—The grant may be reduced from Rs. 7,200 to Rs. 6,000, consequent on the arrangement recently made for housing the Inspector General more cheaply.
- (2) The extension of the new system of special rural sub-registrars makes it unnecessary to provide so large a grant for the *salaries of special sub-registrars*. The Accountant-General proposes a grant of Rs. 45,300, or more than the actual expenditure of 1871-72. A grant of Rs. 36,000 will suffice for the coming year.

- (3) In the same way a full grant, in excess of the actuals of the year 1871-72, will not be required for *mofussil registration establishments*. The grant for the coming year may be taken at Rs. 95,000 in place of Rs. 1,05,612. The large increase of Rs. 40,000 in the grant for commission may be accepted, as the sub-registrars under the new system are to be entirely paid from this source. The need for so large a grant shows that the reductions above ordered in items (2) and (3) are quite reasonable.
- (4) The grant of Rs. 30,000 for *registration buildings* must, the Lieutenant-Governor directs, appear both in the Public Works Department budget and in the Registration budget. But such items must be separately shown, and must be reckoned only once in the provincial total. It is absolutely necessary that Government and the public should know what is spent on departments like registration; and the cost of registration buildings is very clearly a part of the cost of the Registration Department.
2. Under these orders the Registration budget will stand thus:—

		<i>Receipts.</i>	
		Accountant-General's figures,	Figures accepted by Government,
		Rs.	Rs.
		4,00,000	4,00,000
		<i>Expenditure.</i>	
Presidency charges ...	...	53,504	52,300
Mofussil charges ...	...	3,00,412	2,80,700
Registration buildings...	...	...	30,000
Total	...	<u>3,53,916</u>	<u>3,63,000</u>

3. There will thus be an apparent surplus of Rs. 37,000 on the Registration budget of 1873-74. But it must be remembered that the Registration Department was made over to the provincial services with a deficit of Rs. 60,000, so that in reality there is still a deficit of Rs. 23,100. Still the Lieutenant-Governor has on previous occasions declared his unwillingness to make the Registration Department do more than pay for itself, and his anxiety to cheapen and popularize registration as far as possible. He observes that the *actual* expenditure of 1871-72 was only Rs. 2,86,732, exclusive of the cost of registration buildings, and he believes that the estimates now sanctioned are full and liberal. He considers that the provincial Government can now afford to reduce the registration fees on leases and other agreements between landlords and tenants. The Inspector-General will be requested to submit proposals for modifying the fee rates with this view; the Lieutenant-Governor specially desires to make the registration of permanent leases of land very cheap for the smaller classes of leases. The Inspector-General may be allowed, when preparing his plan for giving effect to these orders, to provide for reducing the fee income from registrations of this class by Rs. 15,000 or Rs. 20,000.

FINANCIAL DEPARTMENT.

Calcutta, the 14th February 1873.

READ—

The Medical Department Budget Estimate for the year 1873-74, and the Accountant-General's letter No. 839C, dated 31st January, giving cover thereto.

1. RESOLUTION.—The Lieutenant-Governor observes that this budget estimates for an expenditure greatly above the grant for the current year, and

still more in excess of the actuals of the preceding year (1871-72). The figures under the several sub-heads of the budget are as follows :—

	Actuals of 1871-72.	Sanctioned budget of 1872-73.	Accountant-General's budget of 1873-74.
	Rs.	Rs.	Rs.
Medical establishments	67,364	54,800	62,087
Vaccine " "	78,764	86,600	97,864
Government hospitals and dispensaries	3,66,053	4,17,500	4,50,800
Lock-hospitals	52,500	55,000	54,045
Medical College	1,65,534	1,82,500	1,71,683
Lunatic asylums	1,06,914	1,20,000	1,60,723
Chemical Examiner	1,300	4,800	1,863
Sanitary Commissioner	16,952	21,200	24,264
Medical relief, reserve, and miscellaneous	41,978	54,600	1,49,856
Total	9,00,359	1,00,000	11,73,195

2. The increases are explained as follows :—

Medical establishments.—There is a small increase on account of clerks sanctioned for the Medical Department offices at the presidency; a small increase on account of the medical charge of certain sub-divisions; a considerable increase on account of the expected cost of medical stores and medicines for sale in the interior; and a considerable reduction on the estimate for "service postage stamps." The increase of Rs. 600 in the allowances for attending educational institutions is not explained. The Lieutenant-Governor has recently directed that the medical charge of colleges shall be amalgamated with the duty of lecturing on botany and chemistry. The grant of Rs. 5,400 being a purely educational charge, should be struck out of the "Medical" budget and transferred to the Educational budget.

3. *Vaccine establishments.*—The increase in the cost of the vaccination department is due entirely to the charges on account of the recently-established eastern circle of vaccination, which has broken ground in the Dacca Division. The Lieutenant-Governor does not grudge the extra money, and he would be glad if financial limits permitted him to spend more on this most useful department of medical relief.

4. *Government hospitals and dispensaries.*—There is an increase of Rs. 5,000, which must be admitted, on account of newly-opened dispensaries and on account of annual increases to the salaries of native doctors. The number of assistant surgeons and native doctors provided for as "supernumerary" is still very large; 20 supernumeraries of the former and 50 of the latter grade are estimated for. The Lieutenant-Governor apprehends that there may be employment for all these supernumeraries in the fever-stricken tracts, so he accepts the charge on their account. The addition of a wing to the General Hospital has made room for more patients, so an extra credit of Rs. 6,800 has been rightly taken for the diet and clothing of the General Hospital patients.

A grant of Rs. 58,000 is proposed for "medicines and medical instruments," in place of Rs. 40,000 during current year and Rs. 23,225 "actuals" of 1871-72. It is explained by the Accountant-General that a grant of Rs. 5,500 was separately given in the current year's budget to meet the cost of medicines and instruments for the "General Hospital," and that this separate grant now forms part of the grant of Rs. 58,000, which the Accountant-General proposes should be made. The Lieutenant-Governor is not satisfied that the whole of this large increase is required, and he would therefore reduce this grant to Rs. 43,000, which will still be twice the actual expenditure of the year 1871-72. The increased grant of Rs. 1,000 for laying water on to the Medical College Hospital premises is passed.

5. The Accountant-General's proposed grants for "lock-hospitals" and "the Medical College" are accepted as they stand.

6. The increase of Rs. 7,900 in the cost of lunatic asylum establishments has been separately sanctioned, and the increased grant is admitted. The large increases under "lunatic asylum contingencies," namely, Rs. 1,000 on account of diet and clothing, Rs. 13,500 on account of contingent charges,

Rs. 1,700 under "petty repairs," Rs. 21,000 under cost of "raw material for manufactures," are partially explained. But the Lieutenant-Governor is not satisfied that the whole of the increase under "contingencies" is clearly necessary; and he does not see why the lunatic asylum should want Rs. 28,000 of raw material when they expect to turn out only Rs. 8,000, worth of work. The value of the work done ought at least to equal the value of the new material, even if the lunatic's work has no commercial value whatever. The Lieutenant-Governor would put Rs. 20,000 on each side of the budget for "lunatic asylum manufactures," and he would reduce the contingencies grant from Rs. 28,254 to Rs. 20,000, which will still be 33 per cent. above the current year's grant.

7. *Chemical Examiner's department.*—The Lieutenant-Governor has already agreed to the entry in the budget of another assistant to the Chemical Examiner on Rs. 150 a month. The grant under this head must therefore stand at Rs. 3,600.

8. *Sanitary Commissioner.*—An addition of Rs. 1,200 must be added to this grant to meet the cost of the increase to the Sanitary Commissioner's establishment, which Government is now considering, and will hardly be able to avoid sanctioning. A further credit of Rs. 10,000 must be granted to meet the cost of clerks to aid Civil Surgeons of large districts in checking and compiling vital and other statistics.

9. *Medical relief, and miscellaneous.*—The great increase of Rs. 1,09,862 under this head is on account of the measures taken for the relief of epidemic fever in the Burdwan and Hooghly districts, and the details of the grant are given in a special appendix to the Accountant-General's letter. The large outlay on this object during the current year has been partly met by a grant of one lakh which the Supreme Government was pleased to make. But it was then stipulated that this grant was to be a special and occasional grant, and was not to be renewed in future years. When the "medical" service was made over to the provincial Government in December 1870, the "medical" assignment contained no provision for outlays of this kind. The Lieutenant-Governor is glad, however, that the balances at his disposal enable him to spend this sum of Rs. 1,10,000 on the Burdwan relief; he wishes he could spend more money usefully on the relief of the fever-stricken tracts. When the provincial balances are consumed, the Bengal Government will be obliged, if the epidemic should then unhappily continue, to ask the aid of the Supreme Government.

10. The extra grant of Rs. 4,026 on account of medicines supplied to the Native Hospital in Calcutta may stand. But the Lieutenant-Governor directs that this extra grant, which brings the local Government contribution to the Calcutta Native Hospital and its branch dispensaries to Rs. 30,134, may be borne in mind when any question of spending more public money on Calcutta hospitals comes up.

11. *Receipts.*—The receipts may stand at the figures taken by the Accountant-General, with the exception of the "sale proceeds of lunatic asylum manufactures," which must be taken at Rs. 20,000, the amount of the raw material grant.

12. The sanctioned budget will then stand thus:—

CHARGES.		Accountant-	Sanctioned
		General's estimate.	budget grant.
		Rs.	Rs.
Medical establishments	...	62,087	56,700
Vaccine	...	97,864	97,800
Government hospitals and dispensaries	...	4,50,800	4,35,000
Look-hospitals	...	54,040	54,000
Medical College	...	1,71,680	1,71,700
Lunatic asylums	...	1,60,733	1,51,500
Chemical Examiner	...	1,863	3,600
Sanitary Commissioner	...	24,264	35,600
Medical relief, and miscellaneous	...	1,49,856	1,49,800
	Total	11,73,195	11,55,700
RECEIPTS	...	78,700	90,700

13. In the Public Works Department budget are included the following grants on account of the Medical Department, namely :—

	Rs.
Original works	52,000
Repairs	15,000
Establishments at 25 per cent.	16,700
Total	83,700

Thus, the total expenditure on the Medical Department for the coming year is estimated at Rs. 12,39,400.

Secretary to Government, Judicial Department.
 Accountant-General.
 Inspector-General of Hospitals.
 Sanitary Commissioner.
 Superintendent-General of Vaccination.

ORDERED, that copy of the foregoing resolution, with enclosures, be forwarded to the officers marginally noted; and that this resolution be published in the

Supplement to the *Calcutta Gazette*.

FINANCIAL DEPARTMENT.

Calcutta, the 14th February 1873.

READ—

- Accountant-General's letter No. 902C, dated 11th February 1873, forwarding the Jail budget for the year 1873-74.
- Inspector-General of Jails' letter No. 105, dated 7th January 1873, explaining the items of increase and decrease on the current year's budget.

1. RESOLUTION.—The Lieutenant-Governor observes that the present budget estimate compares with the actuals and the estimate of the two preceding years thus :—

CHARGES.	Actuals of 1871-72.	Grants for 1872-73.	Budget for 1873-74.
	Rs.	Rs	Rs.
Inspection, &c.	38,074	49,000	41,816
Central jails	2,27,962	3,25,000	3,84,610
District jails' establishments	1,88,590	2,03,600	1,73,086
" supplies	4,84,174	5,46,400	4,40,100
Manufactures	5,45,300	6,78,000	7,09,087
Totals	14,84,100	18,02,000	17,48,699
Receipts	6,61,753	10,12,000	10,13,100
Net cost of jails	8,22,347	7,90,000	7,35,599

2. Regarding the items of increase and decrease, the Lieutenant-Governor accepts the explanations given by the Accountant-General and the Inspector-General of Jails. The increase to the Inspector-General's establishment, if eventually sanctioned, can be debited against general savings in the Jail Department; meanwhile the increase need not be separately provided for. The considerable increase in the cost of central jails is due to the progress made towards the completion of the central jail system, and is accepted by the Lieutenant-Governor. The decrease in the district jail establishments satisfactorily shows that the Jail Department is careful to reduce the charges for district jails when the long-term prisoners from these jails are sent to central prisons. The reduction in the grant for district jail rations, &c., is accepted as being warranted by the actuals of past years. The grant of Rs. 20,000 for tread-mills in district jails and for cranks in sub-divisional lock-ups is passed by the Lieutenant-Governor, who hopes that the Inspector-General may succeed during the coming year in introducing more generally these deterrent, though perhaps unproductive, forms of jail labor for short-term prisoners.

3. The proposed grant of Rs. 7,09,000 for "manufactures" is passed; the Lieutenant-Governor observes that the charge for "jail writers" has disappeared from the "manufactures" part of the budget, the necessary provision having been made under district and central jails' establishments. The

estimate of receipts on account of jail manufactures and prison labor may stand at the Accountant-General's figures, namely :—

	Rs.
Sale proceeds of jail manufactures	8,42,800
Payment for convicts' labour on irrigation works ...	20,000
Estimated value of printing done at the Alipore Jail Press ...	1,50,400
Total	10,13,000

The Lieutenant-Governor has ascertained that Rs. 2,60,000 of the manufacturing charges, and Rs. 3,70,000 of the manufacturing receipts, are estimated as pertaining to the Alipore Jail jute-mill; the whole of jail profits outside Alipore therefore are estimated at only Rs. 23,600 net.

4. The "jails" grant for the year 1873-74 will stand thus :—

CHARGES.				Rs.
Inspection, &c. ... ..	...	...	...	41,800
Central jails, &c. ... ..	...	...	...	3,84,600
District jails' establishments ... ..	...	...	...	1,73,000
Ditto supplies ... ..	...	...	...	4,40,100
Manufactures ... ..	...	...	...	7,09,000
			Total	17,48,500
Manufactures, &c. ... ..	...	...	...	10,13,000
Net cost of jails ... ..	...	...	...	7,35,500

5. The following grants have also been made on account of jail buildings during the year 1873-74 :—

	Rs.
New works	6,87,600
Repairs	67,700
Establishment at 25 per cent.	1,88,800
Total	9,44,100

This large outlay is caused by the efforts now being made to complete the new central jails, and to re-construct or improve district jails and lock-ups in different parts of Bengal. The total gross outlay on jails is thus estimated at about 27 lakhs, and the net outlay at 17 lakhs, for the coming year. The Lieutenant-Governor has every reason to hope that the large grants for jail buildings will be well spent, the subject having been thoroughly considered by the Inspector-General and Chief Engineer in constant communication with Government. He fears that there must be a large expenditure under this head for several years before the Bengal jails can be brought into a satisfactory state.

ADMINISTRATION OF JUSTICE IN THE SONTHAL PERGUNNAHS.

No. 908, dated Calcutta, the 14th February 1873.

From—A. MACKENZIE, Esq., Offg. Secy. to the Govt. of Bengal, Judicial Dept.,
To—The Officiating Commissioner of Bhaugulpore.

I AM directed to acknowledge the receipt of your predecessor's endorsement No. 53, dated 17th ultimo, forwarding a letter from the Deputy Commissioner of the Sonthal Pergunnahs, asking that certain Acts might be extended to that district and certain other Acts withdrawn therefrom.

2. In reply I am to say that the Deputy Commissioner, in making proposals for the introduction into the Sonthal Pergunnahs of Acts not now in force there, ought to have given his reasons in full. As at present advised, the Lieutenant-Governor cannot see the necessity for the Civil Court Ameen's

Act and the Peons' Act. The Court of Wards' Act the Commissioner says he does not see the need of extending.

3. As regards the three large modern Acts which it is proposed to withdraw (the Law of Evidence, the Contract Act, and the Criminal Procedure Code), I am to say that these were deliberately introduced, and will not be withdrawn unless it is shown that real and serious evils result in practice from their operation which cannot be got over by good and discreet officers. It will not suffice to show that indiscreet officers thirsting for technicalities may abuse the Acts. In that case the officers will be changed, not the laws.

4. The Evidence and Contract Acts are merely codes laying down general principles, and which may be referred to for those principles. The special Sonthal Regulation regarding usury most clearly overrules the general contract law on that subject, and it was very unnecessary for the Deputy Commissioner to suggest the contrary. As regards fraudulent contracts, or those obtained by cheating or undue influence such as he describes, the Lieutenant-Governor fails to understand why the contract law should make it necessary for officers to believe false evidence, or should render it more difficult for them to sift truth from falsehood.

5. With respect to the Criminal Procedure Code, the Lieutenant-Governor does not think it desirable to withdraw it in order to prevent prisoners from being defended by Counsel. Not many lawyers will find a living by defending criminal cases in the Sonthal Pergunnahs. The right to plead is confined to Barristers, Attorneys, and regularly enrolled Pleaders (of which last class there are probably none in the district). The employment of any other person is entirely in the discretion of the Court (section 186, Criminal Procedure Code). This disposes of your letter No. 183, dated 10th February, since received. Again, where there are no police there can be no formal police enquiry, and the provisions of the Code in that respect become mere surplusage.

6. The Lieutenant-Governor must, on this subject of criminal procedure, express a strong opinion that the Code admits of a simple summary, and effectual procedure, if it is properly worked; and if it is otherwise worked, the fault is that of the officers who use it badly. With a few just exceptions almost any case may be enquired into without stamp or petition when the officer having jurisdiction thinks fit. The parties may be summoned in a very summary way. The record may in most cases be of a very concise character. And if officers will only try to make justice easy where interference is really necessary and not try to make it difficult, and will look to real justice instead of searching for a technicality which they mistake for law, the Lieutenant-Governor has no doubt the Code will work very well.

7. In conclusion, His Honor must remark that it seemed to him, when visiting the Sonthal Pergunnahs, that the officers acting under laws and rules which were designed for a very simple procedure had got into a technical groove much to be deprecated, and adopted the forms and gave themselves the airs of Civil Courts to an extreme degree. There may have been some excuse for this under a policy which aimed at assimilating the administration to that of the regular provinces, but there is none now; and the Lieutenant-Governor will hold the Deputy Commissioner responsible that he and his officers do not suffer the people to be harassed and injustice done by introducing technicalities which the law does not require.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 15th February 1873.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BURDWAN DIVN.	1 Burdwan	Feb. 18th*	Nil.	Weather fair	Sugarcane good, winter cereals being gathered. Grain market same as before.	Fever decreasing.
	2 Baneoorah	" 15th	Nil.	Cool and fair	The rubee crops are doing well. Sugarcane is being cut; a good outturn is expected.	
	3 Beerbhoom	" 15th	Nil.	Dry and cool	Prospects of winter crops fair; would be bettered by a little rain.	
	4 Midnapore	" 15th	Nil.	Cool again	No change; prospects average.	
	5 Hooghly	" 15th	Nil.	Clear throughout; cool in the mornings; north and north-east wind.	Winter crops good; mostly cut.	
	Howrah	" 15th	Nil.	Clear. No rain	There is now no paddy in the fields. The sugarcane crop, which is being cut, is a good one.	
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 24-Pergunnahs	" 18th	Nil.	Fine. Getting warmer every day.	Paddy harvested. Winter crops good. Total ... and nearly gath red.	Health generally good; but cholera still continues.
	7 Nuddea	" 15th	Nil.	Seasonable	Prospects generally favorable. Outturn of shursha in Chooadanga subdivision reported at three-fourths crop.	
	8 Jessore	" 15th	Nil.	Clear	State and prospects of crops good, but rain is wanted.	
	9 Moorshedabad	" 15th	Nil.	Clear and seasonable weather.	Prospects of winter crops promising, but the crops are suffering somewhat in consequence of the want of rain.	Small-pox is spreading. Cholera is present in the district, but not in an aggravated form.
RAJSHAHYE DIVISION.	10 Dinagepore	" 15th	Nil.	Fine	Good, but rain wanted.	Return not received.
	11 Maldah	" ..	.....	.....	.....
	12 Rajshahye	" 15th	Nil.	Fine and seasonable	Indigo is flourishing, and the prospects of the rubee crops continue satisfactory. Mulberry, arohur, and gunjah, are now being cut.	
	13 Rungpore	" 15th	Nil.	Cold and foggy towards the south; warmer at headquarters.	Generally favorable.	
	14 Bograh	" 15th	Nil.	Fine	The state of the rubee crops continues as good as before.	
15 Pubna	" 15th	Nil.	Weather fair, and is getting warm. Rain wanted.	All the cold weather crops are doing well, except in some villages, where they have been injured to the extent of 4 annas by a species of small flies called jaab poka (জাব পোকা).		

* Telegram of the 18th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
(BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>		1873.				
COOCH BEHAR DIVN.	16 Darjeeling	Feb. 15th	Nil.	Fair	Wheat, barley, and phar crops are progressing favorably in the hills. Cowrie and samah have been sown. In the plains there are no crops; at present the land is being ploughed.	
	17 Julpigoree	" 15th	Nil.	Very warm for the time of the year.	Tobacco crop promising. A fair mustard crop is being gathered.	
	Cooch Behar	" 15th	Nil.	Fine	Mustard seed is being cut, and ploughing for early rice crop is going on. A little rain would be beneficial to the tobacco and other crops.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	" 18th*	Nil.	Weather fair and dry.	Safflower bad. Rain wanted.	
	19 Furreedpore	" 15th	Nil.	Weather dry and cold.	The rubee crop is suffering from the continued want of rain.	
	20 Backergunge	" 15th	Nil.	Fair and cold	State and prospects of crops very good.	
	21 Mymensing	" 15th	Nil.	Fine, bright weather, cool and pleasant. No rain during the week in any parts of the district.	The state of the boro dhan crop is satisfactory. Rain would be beneficial for agricultural operations.	Health of the district good. Small-pox and cholera have almost entirely disappeared.
	22 Sylhet	" 8th	Nil.	Hottish for this season.	Boro dhan has been wholly planted out.	
	23 Cachar	" 8th	0.14	Fair and very cool	No crops on the ground.	
	CHITTAGONG DIVN.	24 Chittagong	" 8th	Nil.	Fine and dry, with northerly wind.	Reports generally favorable. Nothing new.	Cholera seems still decreasing.
25 Noakhally		" 8th	Nil.	Morning and evening pretty cool; very hot sun during the day; occasionally high north wind at noon.	Cold weather crops good.	
26 Tipperah		" 15th	Nil.	Seasonable	Quite satisfactory.	
27 Chittagong Hill Tracts		" 8th	Nil.	Cold and bracing	The crops on the ground are doing well. The gathering of the mustard is nearly over. Tobacco progressing well.	
	Hill Tipperah	" 8th	Nil.	Dry, clear, and cold	No changes of any importance. Chillies doing well in the field.	
BEHAR						
PATNA DIVN.	28 Patna	" 18th*	Nil.	Weather seasonable; light clouds hanging about on the morning of the 18th.	Prospects of rubbee crops and poppy continue favorable.	Health of the district good.
	29 Gya	" 15th	Slight showers on the 8th instant.	Fine, but towards Nowada unsettled.	The cold weather crops are promising; some rain wanted towards the north.	
	30 Shahabad	" 15th	Slight.	Weather warmer and cloudy, westwind during the week, and slight rain fell during the early part.	Peas and masoor are being harvested. The other crops are so far promising. No returns from Sasseram and Buxar sub-divisions.	Small-pox has broken out in one or two places, otherwise the health of the district is good.

* Telegram of the 18th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR.—(Contd.)		1873.				
PATNA DIVN.—(Contd.)	31 Tirhoot	... Feb. 15th	Nil.	Fair ...	The mustard and tobacco crops are being harvested. The rubee continues to do well. Indigo plant coming up in many places. Rain is wanted in some places.	
	32 Sarun	... „ 15th	Nil.	Fine and seasonable...	No particular change since last week. Crops are generally doing well. Mustard and peas are being reaped. The poppy crop is in flower.	
	33 Chumparun	... „ 15th	Nil.	Fair. West wind ...	The prospects of the rubee crops continue fair; no change since last week.	
BHAUGULPORE DIVN.	34 Monghyr	... „ 15th	Nil.	Very fine	The prospects of the crops continue very good.	
	35 Bhaugulpore	... „ 18th*	Nil.	No change in the weather since last week, which was much warmer.	Rain wanted everywhere for the crops.	
	36 Purneah	... „ 15th	Nil.	Dry, west wind blowing.	The rubee crops want rain, but on the whole are excellent.	
	37 Southal Pergunnahs...	... „ 15th	Nil.	Getting rapidly hot ...	No change from last week.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	... „ 18th*	Nil.	Weather cooler ...	Crops good.	Some cholera cases of a malignant type have been occurring since the 2nd week of January.
	39 Pooree	... „ 8th	Nil.	Skies clear; wind southerly.	Mustard cut. Moog coming on well.	
	40 Balasore	... „ 15th	Nil.	Seasonable ...	No important crops on the ground now. The out-turn of the paddy harvest has been very large.	
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
	41 Hazareebaugh	... „ 15th	Nil.	Clear, cold, and seasonable.	With the exception of poppy, much of which is backward owing to the cultivators having to sow two or three times before any germinated, all the cold weather crops have been very good.	Small-pox still prevalent. Otherwise health of the district good.
	42 Loharduggah	... „ 15th	Nil.	Seasonable	The reports of the rubee crops are on the whole favorable, but a shower of rain is much required, particularly in Palamow.	
	43 Singbhoom	... „ 8th	Nil.	Seasonable	Favorable	District healthy, except town of Chyehassa, where small-pox is prevailing.
	44 Maunbhoom	... „ 15th	Nil.	Fine and cool	Favorable	Small-pox has lately appeared in the station of Purulia.
ASSAM AND ADJACENT HILLS.						
	45 Goalparah	... „ 8th	Nil.	Fair and moderately cold.	Cutting of mustard still continues, and that of sugarcane has commenced. Out-turn of both good. Produce of cotton fair.	
	46 Kamroop	... „ 17th†	Nil.	Weather rather warm and fogs in the morning lighter.	Lands for aus crops being broken up, mustard seed nearly all gathered, and sugarcane being cut; pulse promises favorably.	Public health good.

* Telegram of the 18th February received on the same day.

† Telegram of the 17th February received on the 18th.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ASSAM AND ADJACENT HILLS.—(Contd.)		1873.				
47	Durrung	Feb. 8th	0.12	Sultry days, cold mornings, wind variable. Thunder-storm on the 1st February.	Crops of mustard seed and sugarcane all looking well.	
48	Nowgong	" 8th	Nil.	Weather cold; evenings pleasant.	Mustard being reaped. Ahu lands being ploughed. Tea good. Sugarcane promising.	
49	Seebaugor	" 8th	0.68	Bright, clear days; cold mornings and nights. Heavy thunder-storm on the 1st February 1873.	Cold weather crops—mustard and sugarcane—advancing.	Cholera decreased.
50	Luckimpore	" 8th	0.68	Weather reasonable and generally favorable for agricultural operations. At North Lukimpore, cloudy on the 1st and heavy rain on the night of that day. Rest of the week fine. Thermometer. Maximum ... 79° Minimum ... 45°	Cutting of sugarcane commenced in places. Mustard doing well. Preparations for aus dhan commenced.	Public health satisfactory.
51	Naga Hills	" 1st	Nil.	Clear and fine throughout the district.	The hill men are busy cutting their jooms.	
52	Khasi and Jynteah Hills.	" 8th	Nil.	The weather has been much milder this week, and the season seems rapidly advancing.	The agriculturists are preparing their lands for the spring cultivation, but at present there are no crops on the ground.	
53	Garo Hills	" 8th	Nil.	Fine throughout the week, but atmosphere very hazy. Nights cold and clear; gentle breezes, generally lasting throughout night, till 9 A.M. in the morning.	Jooms are being prepared.	

Published for general information.

CALCUTTA,
The 18th February 1873.

H. J. S. COTTON,
Offg. Asst. Secy. to the Govt. of Bengal.

Weekly Report of Rainfall, compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from	Rain from	RAIN FROM 1ST		REMARKS.	
			26th Jan. to 1st Feb. 1873.	2nd to 8th Feb. 1873.	JANUARY 1873.	Up to date.		
BENGAL.			Inches.	Inches.	Inches.	1873.		
WESTERN DISTRICTS.								
BURDWAN.	Burdwan	Burdwan ...	Nil.	Nil.	Nil.	8th Feb.		
		Outwa ...	ditto	ditto	ditto	ditto		
		Culma ...	ditto	ditto	ditto	ditto		
		Bood-Bood ...	ditto	ditto	ditto	ditto		
		Raneerunge ...	ditto	ditto	0'10	ditto		
	Bancoorah	Jehansbad ...	ditto	ditto	Nil.	ditto		
		Bancoorah ...	ditto	ditto	ditto	ditto		
		Sooreah ...	ditto	ditto	0'08	ditto		
	Bourbhoom	Midnapore ...	ditto	ditto	0'18	ditto		
		Tumlook ...	ditto	ditto	0'50	ditto		
	Midnapore	Gurbetta ...	ditto	ditto	Nil.	ditto		
	Hooghly	Contal ...	{ Dy. Collr.'s Office... Exe. Engr.'s Office	Not rec.	ditto	ditto	ditto	Not received 26th Jan. to 1st Feb.
Hooghly ...		Hooghly ...	Nil.	11.	ditto	4th Jan.		
Serampore ...		Serampore ...	ditto	ditto	0'05	8th Feb.		
Howrah	Howrah ...	Howrah ...	ditto	ditto	0'05	ditto		
CENTRAL DISTRICTS.								
PRESIDENCY.	24-Pergunnahs	Saugor Island ...	ditto	ditto	Nil.	ditto		
		Calcutta ...	ditto	ditto	ditto	ditto		
		Alipore... { Dispensary Jail	ditto	ditto	0'10	ditto		
		Busseerhant ...	ditto	ditto	ditto	ditto		
		Baraset ...	ditto	ditto	ditto	ditto		
		Diamond Harbour...	ditto	ditto	0'45	ditto		
		Barripore ...	ditto	ditto	Nil.	ditto		
		Sakkherah ...	ditto	ditto	0'20	ditto		
		Barraekpore ...	ditto	ditto	0'07	ditto		
		Dum-Dum ...	ditto	ditto	Nil.	ditto		
		Kishnachur ...	ditto	ditto	ditto	ditto		
		Bongong ...	ditto	ditto	0'11	ditto		
	Nudda	Meherpore ...	ditto	ditto	Nil.	ditto		
		Chooadangah ...	ditto	ditto	ditto	ditto		
		Kooshita ...	ditto	ditto	0'24	ditto		
		Ranaghat ...	ditto	ditto	Nil.	ditto		
	Jessore	Jessore ...	ditto	ditto	0'16	ditto		
		Nurail ...	ditto	ditto	0'30	ditto		
		Khoolneah ...	ditto	ditto	Nil.	ditto		
		Jenidah ...	ditto	ditto	ditto	ditto		
	Magoorah	Bagirhant ...	Not rec.	ditto	ditto	ditto	Ditto ditto.	
		Magoorah ...	Nil.	ditto	ditto	ditto		
	RAJSHAHY.	Moorshedabad	Borhampore ...	ditto	Nil.	0'20	ditto	
			Ramporehaut ...	ditto	ditto	Nil.	ditto	
City Moorshedabad ...			ditto	0'11	0'25	ditto		
Dinapore		Juncipore ...	ditto	Nil.	0'33	ditto		
		Azimungo ...	ditto	0'20	0'33	ditto		
		Dinapore ...	ditto	Not rec.	0'29	1st Feb.		
Maldah		Maldah ...	ditto	Nil.	0'45	8th Feb.		
		Maldah ...	ditto	0'15	0'03	ditto		
Rajahshye		Benuleah ...	ditto	Nil.	0'51	ditto		
		Natore ...	ditto	ditto	0'05	ditto		
Rungpore		Rungpore ...	ditto	ditto	Nil.	ditto		
		Bhowanungo ...	ditto	ditto	0'20	ditto		
Bograh	Bograh ...	ditto	ditto	0'22	ditto			
	Bograh ...	ditto	0'08	0'14	ditto			
Pubna	Pubna ...	ditto	Not rec.	0'27	1st Feb.			
COOCH BEHAR.	Darjeeling	Darjeeling { Telegraph Office Hospital	Not rec.	ditto	Nil.	15th Jan.		
		Darjeeling ...	0'02	Nil.	0'02	8th Feb.		
	Julpigoree	Julpigoree ...	Nil.	ditto	0'05	ditto		
	Fallicotta	Fallicotta ...	ditto	ditto	0'14	ditto		
Cooch Behar Tributary State	Boda ...	ditto	ditto	Nil.	ditto			
	Cooch Behar ...	ditto	ditto	ditto	ditto			
Bhutan Donors	Buxa ...	ditto	ditto	0'44	ditto			
EASTERN DISTRICTS.								
DACCA.	Dacca	Dacca { Telegraph Office Hospital	ditto	ditto	Nil.	ditto		
		Dacca ...	ditto	ditto	ditto	ditto	Not received 12th to 18th January.	
		Moonshogunge ...	ditto	ditto	ditto	ditto	Ditto ditto.	
	Furreedpore	Mauckgunge ...	ditto	ditto	ditto	ditto	Ditto ditto.	
		Furreedpore ...	ditto	ditto	ditto	ditto		
	Goalundo	Goalundo ...	ditto	ditto	ditto	ditto		
		Goalundo ...	ditto	ditto	ditto	ditto		
	Bakergunge	Hurrisaul ...	ditto	ditto	0'59	ditto		
		Perozepore ...	ditto	ditto	Nil.	ditto		
		Mudariopore ...	ditto	ditto	0'05	ditto		
		Patookhally ...	ditto	ditto	Nil.	ditto	Not received 19th to 25th Jan.	
	Dowlat Khan	Dowlat Khan ...	ditto	ditto	0'23	ditto		
Dowlat Khan ...		ditto	ditto	ditto	ditto			
Mymensing	Mymensing ...	ditto	0'10	0'20	ditto			
	Jamshpore ...	ditto	Nil.	Nil.	ditto			
	Atteah ...	ditto	ditto	0'26	ditto			
Kishoregunge	Kishoregunge ...	ditto	0'10	0'30	ditto			
	Sylhet ...	ditto	Nil.	0'33	ditto			
Cachar	Cachar ...	ditto	0'14	0'18	ditto			
	Hylakandy ...	Not rec.	Not rec.	1'00	23th Jan.	Not received 5th to 11th Jan.		
Koyah	Koyah ...	Nil.	0'19	0'06	8th Feb.			
	Koyah ...	ditto	ditto	ditto	ditto			
CHITTAGONG.	Chittagong	Chittagong { Telegraph Office Jail	ditto	Nil.	0'20	ditto		
		Chittagong ...	ditto	ditto	0'35	ditto		
	Chittagong Hill Tracts	Cox's Bazar ...	ditto	Not rec.	0'00	1st Feb.		
		Rungamtee Hill ...	ditto	Nil.	0'40	8th Feb.		
	Noakhally	Noakhally ...	ditto	ditto	0'01	ditto		
		Comilla ...	ditto	ditto	Nil.	ditto		
Tipperah	Brahmanbariah ...	ditto	0'05	0'07	ditto			
Hill Tipperah	Hill Tipperah ...	ditto	Nil.	0'29	ditto			

DIVISION.	DISTRICT.	STATION.	Rain from 26th Jan. to 1st February 1878.	Rain from 2nd to 8th Feb. 1878.	RAIN FROM 1ST JANUARY 1878.		REMARKS.	
					Inches.	Up to date.		
PATNA.	BEHAR.	Patna	Inches. 0.02	Inches. Nil.	Inches. 0.21	8th Feb.		
		Behar	ditto Nil.	ditto	0.65	ditto.		
	Patna	Bah	ditto	0.05	0.16	ditto.		
		Dinapore { Jail Cantonment	ditto	ditto	Nil.	ditto.		
			ditto	ditto	Nil.	ditto.		
		Gya	Gya	ditto	ditto	0.17	ditto.	
	Nowadah		ditto	ditto	0.33	ditto.		
	Aurunabad		ditto	ditto	0.12	ditto.		
	Jehanabad		Not rec.	Not rec.	0.10	18th Jan.		
	Shahabad	Arrah	Nil.	0.06	0.38	8th Feb.		
		Sasaram	0.11	Nil.	0.11	ditto.		
		Ruzar	0.10	0.10	0.50	ditto.		
		Bhuboah	Nil.	Nil.	0.50	ditto.		
	Tirhoot	Mozufferpore	ditto	ditto	2.20	ditto.		
		Durhanga	ditto	ditto	0.02	ditto.	Not received 1st to 4th January.	
		Hajipore	Not rec.	ditto	0.15	ditto.	Not received 20th Jan. to 1st Feb.	
		Mudhubani	ditto	Not rec.	0.16	25th Jan.		
	Sarun	Soetamaree	Nil.	Nil.	0.29	8th Feb.		
		Tajpore	ditto	ditto	0.25	ditto.	Not received 1st to 4th and 15th to 25th January.	
	Chumparun	Chuprah	ditto	ditto	0.20	ditto.		
		Sewan	ditto	0.02	0.38	ditto.		
	Mouhyr	Moteehari	ditto	Nil.	0.90	ditto.		
		Bettiah	0.25	ditto	0.25	ditto.		
	BHAUGULPORE.	Monghyr	Monghyr	Nil.	ditto	0.34	ditto.	
			Begoeserai	ditto	ditto	0.47	ditto.	Not received 8th to 11th January.
Bhaugulpore		Jamooie	ditto	ditto	0.46	ditto.		
		Bhaugulpore	ditto	ditto	0.40	ditto.		
Purneah		Soopool	ditto	ditto	Nil.	ditto.		
		Mudheypoorah	ditto	ditto	ditto	ditto.		
		Banka	ditto	ditto	0.70	ditto.		
		Purneah	ditto	ditto	0.27	ditto.		
Sonthal Pergunnahs		Kinheungung	ditto	ditto	Nil.	ditto.		
		Arrareah	ditto	ditto	ditto	ditto.		
	Deoghur	ditto	ditto	0.29	ditto.			
	Jamtara	ditto	ditto	Nil.	ditto.			
ORISSA.	Rajmehal	ditto	ditto	ditto	ditto.			
	Pakour	ditto	ditto	ditto	ditto.			
	Nya-Doomka	ditto	ditto	0.28	ditto.			
	Godda	ditto	ditto	0.63	ditto.			
OUTTACK.	Cuttaek { Telegraph Office Hospital	ditto	Nil.	Nil.	Nil.	ditto.		
		ditto	ditto	ditto	ditto	ditto.		
	Jajipore	ditto	ditto	Not rec.	ditto	1st Feb.		
		ditto	ditto	ditto	ditto	ditto.		
	Kendrapara	ditto	ditto	ditto	ditto	ditto.		
		Jurutankpore	ditto	Nil.	0.78	ditto.		
	Pooree	False Point	ditto	ditto	Nil.	8th Feb.		
		Pooree	ditto	ditto	ditto	ditto.		
	Balsore	Khordah	0.06	ditto	0.08	ditto.		
		Balsore	Nil.	ditto	Nil.	ditto.		
Cuttaek Tributary	Bhuddruck	ditto	ditto	ditto	ditto.			
Mehals	Sambalpore	Not rec.	Not rec.	.....	.....	
CHOTA NAGPORE.	Hazarcebaugh { Jail Dispensary	ditto	Nil.	Nil.	Nil.	8th Feb.		
		ditto	ditto	ditto	ditto	ditto.		
	Loharduggah	Pachumba	ditto	ditto	ditto	ditto.		
		Ranchee	ditto	ditto	ditto	ditto.		
	Singbhoom	Palamow	ditto	ditto	ditto	ditto.		
		Chyobassa	ditto	ditto	0.19	ditto.		
	Maunbhoom	Pumlia	ditto	ditto	Nil.	ditto.		
		Gobindpore	Not rec.	ditto	ditto	ditto	Not received 26th Jan. to 1st Feb.	
	ASSAM & ADJACENT HILLS.	Goalparah	Goalparah	ditto	ditto	ditto	ditto.	Ditto ditto.
			Dhoobree	ditto	ditto	ditto	ditto.	
Kamroop		Gowhaty	Nil.	ditto	0.11	ditto.		
		Burpotlah	ditto	ditto	0.50	ditto.		
Darrung		Tespor	ditto	Not rec.	0.40	1st Feb.		
		Mungledye	ditto	ditto	0.33	ditto.		
Nowgong		Nowgong	ditto	Nil.	0.05	8th Feb.		
		Nowgong	ditto	Not rec.	1.21	1st Feb.		
Soobsaugor		Soobsaugor	ditto	ditto	0.67	ditto.		
		Golaghat	ditto	ditto	1.08	ditto.		
Luckimpore	Jorahat	Not rec.	ditto	.....	.....	
	Nazeerah	Nil.	ditto	0.85	1st Feb.			
Naga Hills	Dobrooghur	ditto	ditto	0.80	ditto.			
	North Luckimpore	ditto	ditto	1.63	ditto.			
Khas and Jynteah Hills.	Suddya	Not rec.	ditto	.....	.....	
	Samoogooding	Nil.	Nil.	Nil.	8th Feb.			
Garohills	Shillong	ditto	ditto	ditto	ditto.			
	Jacowl	ditto	0.04	0.25	ditto.			
Tura	Cherrapoonsee	ditto	Nil.	0.43	ditto.			
	Bonares	ditto	ditto	Nil.	ditto.			
Akyab	ditto	ditto	0.60	ditto.				

CALCUTTA,

The 15th February 1878.

H. F. BLANFORD,

Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 9th to 15th February 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Rnt. =100	WIND.		Rain.	Clouds.	Weather initials.	
					Dry	Wet		Direction.	Velocity.				
CALCUTTA.	9th Feb.	10	30.000	30.027	76.8	71.4	75	W S W	...	...	...	b
		16	29.984	29.909	86.0	71.5	46	W N W	...	...	K	b
	10th	10	30.061	30.079	77.5	63.9	43	N by E	...	...	...	b
		16	29.927	29.945	83.5	64.0	29	N by E	...	...	...	b
	11th	10	30.030	30.058	75.5	63.2	47	N E	...	...	...	b
		16	29.908	29.926	84.3	65.5	31	N W	...	...	...	b
	12th	10	30.102	30.121	75.0	60.3	37	N N E	...	...	...	b
		16	29.964	29.982	82.3	62.5	20	N E	...	...	...	b
	13th	10	30.093	30.111	71.1	59.4	45	N E	...	...	...	b
		16	29.913	29.901	81.4	61.5	25	W N W	...	...	...	b
	14th	10	30.057	30.076	72.7	60.6	45	N W	...	...	...	b
		16	29.928	29.916	81.8	61.5	25	W by N	...	...	...	b
	15th	10	30.067	30.086	74.5	63.0	45	E N E	...	...	...	b
		16	29.911	29.929	83.0	63.3	28	N W	...	...	...	b
	SAVOR ISLAND.	9th Feb.	10	30.043	30.049	78	74	81	W S W	4.2	...	C	b
			16	29.911	29.917	78	75	78	S S W	10.1	b, m
		10th	10	30.000	30.066	80	65	40	N E	4.6	b, m
			16	29.933	29.939	84	66	31	N	12.8	...	C	b, m
11th		10	30.030	30.036	70	67	50	N N E	4.6	...	...	b, m
		16	29.916	29.922	82	72	59	S	5.9	...	...	b, m
12th		10	30.104	30.110	77	63	38	N E	5.7	...	...	b, m
		16	29.966	29.972	82	62	20	N	14.1	...	...	b, m
13th		10	30.100	30.106	74	62	47	N N W	4.9	...	...	b, m
		16	29.978	29.984	81	61	25	N	12.2	...	...	b, m
14th		10	30.064	30.070	82	63	44	N N W	5.8	...	...	b, m
		16	29.953	29.959	82	61	23	N	8.6	...	...	b, m
15th		10	30.066	30.072	76	64	48	N N W	4.8	...	...	b, m
		16	29.964	29.970	81	67	44	W	5.3	...	...	b
CHITTAGONG.		9th Feb.	10	29.931	30.025	76	65	52	N	5.2	b, m
			16	29.834	29.926	83	77	75	W	5.8	b, m
		10th	10	29.956	30.050	77	68	60	N	4.4	b, m
			16	29.842	29.934	83	71	52	W	8.5	b, m
	11th	10	29.944	30.038	74	64	55	N N E	5.3	...	...	b, m
		16	29.814	29.904	83	63	27	W N W	8.3	...	...	b, m
	12th	10	30.018	30.112	75	60	36	W N E	4.3	...	...	b, m
		16	29.870	29.962	83	63	27	W N W	9.2	...	...	b, m
	13th	10	29.969	30.064	72	59	41	N N E	5.8	...	...	b, m
		16	29.850	29.943	82	60	20	W	10.9	...	...	b, m
	14th	10	29.946	30.040	73	60	42	N	6.4	...	...	b, m
		16	29.827	29.920	83	63	26	W	9.2	...	...	b, m
	15th	10	29.836	30.030	73	63	51	N E	6.6	...	...	b, m
		16	29.807	29.899	83	65	33	W	9.0	...	...	b, m
	MADRAS.	8th Feb.	10	30.052	30.082	82	73	63	E N E	8	e
			16	29.945	29.975	82	73	63	E by N	7	b, e
		9th	10	30.055	30.085	81	72	62	E by N	9	b, e
			16	29.934	29.964	82	73	63	K by N	8	b, e
10th		10	30.064	30.094	80	71	62	E N E	5	...	...	b, e
		16	29.933	29.963	81	72	62	E	5	...	...	b, e
11th		10	30.020	30.050	81	73	66	E by N	5	...	...	b, e
		16	29.920	29.950	83	73	63	E by S	6	...	...	b, e
12th		10	30.046	30.076	80	73	70	E by S	3	...	...	b, e
		16	29.933	29.963	83	75	67	E by N	8	...	...	b, e
13th		10	30.000	30.090	83	74	63	E N E	5	...	...	b, e
		16	29.947	29.977	83	75	67	N E by E	9	...	...	b, e
14th		10	30.052	30.082	83	73	60	N E	9	...	...	b, e
		16	29.947	29.977	83	74	63	N E by E	12	...	...	b, e
15th		10	30.001	30.084	72	66	58	S W	1.2	...	...	b
		16	29.868	29.950	89	70	35	E S E	2.6	...	...	b
CUTTACK.		8th Feb.	10	29.999	30.062	80	70	58	W	1.2	b
			16	29.827	29.908	91	72	36	W	6.2	...	KS, C	b
	9th	10	29.983	30.068	68	51	21	N E	2.4	...	...	b
		16	29.855	29.937	88	69	34	E N E	3.9	...	...	b
	10th	10	29.943	30.028	82	70	52	N N E	1.2	...	C	b	
		16	29.840	29.921	91	72	36	E S E	3.0	...	C, K	b	
	11th	10	30.021	30.104	79	74	77	E	5.2	...	K, N, C	b	
		16	29.873	29.955	87	73	43	E N E	3.9	...	KO	b	
	12th	10	30.006	30.089	81	66	41	N E	1.9	...	...	b
		16	29.865	29.947	86	65	27	S E	4.0	...	...	b
	13th	10	29.892	29.975	77	67	56	S W	0.7	...	...	b
		16	29.868	29.950	87	68	33	N	2.6	...	...	b
	14th	10	29.993	30.015	75	66	59	N E	0.3	...	...	b
		16	29.869	29.901	83	69	48	W	1.8	...	...	b
	15th	10	29.998	30.020	82	69	48	N	0.1	...	...	b
		16	29.863	29.884	84	72	53	N W	6.8	...	...	b
	16th	10	29.985	30.007	81	65	38	N N W	1.3	...	...	b
		16	29.846	29.907	85	69	41	W N W	2.5	...	...	b
17th	10	30.010	30.032	79	61	30	N	1.0	...	...	b	
	16	29.876	29.907	86	67	32	N W	7.1	...	...	b	
18th	10	29.980	30.002	80	64	37	N	1.7	...	...	b	
	16	29.861	29.882	84	68	40	W N W	4.3	...	...	b	
19th	10	29.990	30.012	78	65	52	E N E	0.8	...	...	b	
	16	29.892	29.914	80	63	44	W	1.6	...	...	b	
20th	10	29.990	30.012	79	67	50	E N E	0.4	...	...	b	
	16	29.873	29.894	79	69	58	W	1.1	...	...	b	

* Velocity of wind in miles per hour.

Abstract of Observations as received in the Meteorological Reporter's Office, Calcutta, DURING THE MONTH OF NOVEMBER 1872.

N.B.—The Barometric data are reduced for temperatures, and not for height above sea-level.

STATIONS.	Height above sea-level.	BAROMETER.					TEMPERATURE OF AIR.										RADIATION.		HUMIDITY.					RAINFALL.		
		MEAN OF					Solar.	GROSS NOCTURNAL.		Mean of min.	Mean daily range.	Mean of max.	Mean of min.	MEAN OF			Highest Max.	Monthly Range.	Lowest Min.	MEAN OF			In inches.	No. of days.		
		4 hours.	10 hours.	16 hours.	22 hours.	Mean.		4 hours.	10 hours.					16 hours.	22 hours.	Mean.				4 hours.	10 hours.	16 hours.			22 hours.	
Air	100	29.802	29.845	29.760	...	18.5	165.0	...	...	97	77.2	81.	85.5	84.8	...	13-15th	88.0	15.0	74.0	...	71	71	71	...	5.10	18
Water	27	29.857	29.854	29.836	...	...	...	...	...	4.5	77.4	78.5	80.4	83.7	...	...	85.0	11.0	74.0	...	72	72	72	...	3.60	19
Point	21	29.904	29.881	29.870	...	17h	147.0	...	...	17.8	69.2	77.7	77.9	77.9	...	...	85.8	27.2	62.6	...	73	73	73	...	0.03	5
Island	80	29.938	29.885	29.845	...	15h	151.5	55.4	28h	21.2	65.2	75.3	78.5	82.5	...	...	91.0	32.4	58.6	...	88	88	88	...	4.05	2
Young	9	29.848	29.823	29.801	...	28h	145.4	63.8	27h	15.1	66.7	75.4	79.4	82.2	...	...	88.0	28.8	59.1	...	81	81	81	...	0.05	1
...	18-11	29.845	29.819	29.808	...	6h	148.5	...	...	30.4	65.3	76.6	79.1	82.1	...	...	88.0	24.8	61.4	...	86	86	86	...	0.08	1
...	20	29.530	29.815	29.803	...	4h	147.4	58.3	26h	48.9	68.7	74.9	80.7	82.1	...	...	90.0	32.8	63.2	...	93	93	93	...	0.08	1
...	35	29.818	29.881	29.872	...	1st	148.9	60.0	28h	63.5	68.5	75.7	81.3	83.3	...	...	90.6	30.3	60.3	...	88	88	88	...	0.04	1
...	88-21	29.867	29.852	29.837	...	3rd	139.0	59.9	28-3	51.0	63.7	73.7	78.9	83.1	...	...	84.8	33.0	57.0	...	89	89	89	...	0.04	1
...	20-14	29.910	29.817	29.802	...	7h	165.0	47.0	27h	37.0	59.0	67.9	71.6	73.9	...	...	84.8	32.5	49.5	...	89	89	89	...	0.04	1
...	64	29.808	29.887	29.868	...	7h	154.0	61.0	24h	61.0	68.0	75.4	79.1	82.7	...	...	89.0	32.5	49.0	...	92	92	92	...	0.04	1
...	386	29.651	29.877	29.868	...	7h	135.5	53.8	28h	41.5	59.4	72.2	79.2	81.3	...	...	87.3	39.3	49.0	...	76	76	76	...	0.04	1
...	179	29.794	29.770	29.850	...	7-8h	148.0	54.4	28h	43.0	59.9	71.9	79.2	80.9	...	...	86.8	37.5	49.8	...	78	78	78	...	0.04	1
...	1604	29.815	29.786	29.891	...	6h	143.0	49.6	28h	49.1	64.2	73.1	75.6	81.0	...	...	85.3	30.3	48.5	...	67	67	67	...	0.04	1
...	6,945	29.145	29.438	29.480	...	30h	137.0	39.3	30h	33.0	44.5	51.9	58.8	60.2	...	...	69.0	32.0	37.0	...	78	78	78	...	0.04	1
...	386	29.597	29.584	29.655	...	1st	145.0	36.6	30h	29.0	48.9	63.3	69.9	74.7	...	...	71.0	29.4	36.6	...	98	98	98	...	0.04	1
...	4,793	29.524	29.521	29.523	...	8-9	143.0	36.6	30h	29.0	53.3	69.5	73.7	78.9	...	...	81.0	43.5	49.5	...	64	64	64	...	0.04	1
...	362.74	29.735	29.723	29.794	...	7-8h	143.0	44.6	28-28h	35.5	60.5	68.3	73.7	78.9	...	...	80.2	43.5	49.5	...	59	59	59	...	0.04	1
...	879.7	29.109	29.120	29.111	...	2nd	143.7	44.6	28-28h	35.5	60.5	68.3	73.7	78.9	...	...	80.2	43.5	49.5	...	59	59	59	...	0.04	1

CALCUTTA—November 1872.

Mean Barometric pressures of 16 years	29.986	Mean humidity of 16 years	74.7	Mean rainfall of 16 years	1.09
Ditto ditto in 1872	29.945	Ditto ditto in 1872	76.6	Actual fall in 1872	0.02
Defect in 1872	0.041	Excess in 1872	1.0	Defect in 1872	1.07

CALCUTTA, HENRY F. BLANFORD, Meteorological Reporter to the Govt. of Bengal. The 15th February 1873.

Mean pressures and temperatures of the preceding table reduced to sea-level, with Anemometric results and observations of sky serenity.

STATIONS.	Mean barometric pressures reduced to sea-level.	Mean temperature reduced to sea-level.	WIND.										Percentage and Resultant.	Mean velocity daily.	Mean serenity.		
			North.	North-East.	East.	South-East.	South.	South-West.	West.	North-West.	Calm.						
Port Blair	29.905	81.3	1	46	2	8	...	...	...	...	...	...	...	...	81 N 52 E	...	4.55
Madras	29.915	78.6	25	25	4	...	...	...	2	3	...	...	...	...	76 N 23 E	235.4	...
Vizagapatam	29.943	79.8	5	19	68	5	...	...	3	5	11	...	...	...	60 N 77 E	91.0	6.98
Akyab	29.926	77.7	15	18	17	...	...	...	3	6	24	31	...	...	41 N 26 W	18.7	7.88
False Point	29.972	77.9	41	49	1	3	...	...	...	...	10	17	...	...	71 N 20 E	...	...
Cuttack	29.984	75.5	39	10	...	...	...	...	...	21	41	8	...	...	73 N 30 W	45.8	8.71
Sagar Island	29.900	75.4	50	36	3	...	...	...	1	6	17	...	...	...	77 N 6 E	94.7	7.00
Chittagong	29.942	76.4	34	8	3	...	...	...	4	27	41	5	...	...	70 N 41 W	79.5	8.81
Calcutta	29.964	76.6	47	32	11	...	...	...	7	7	23	...	...	...	75 N 7 E	71.0	...
Jessore	29.960	74.9	56	6	5	2	2	2	7	1	17	23	...	...	54 N 7 W	44.1	9.17
Dacca	29.952	75.7	44	4	2	2	1	3	9	39	9	...	...	...	21 N 25 W	44.4	8.94
Cachar	...	73.9	3	24	28	10	4	8	8	3	27	...	...	...	32 N 82 E	60.4	7.00
Hasareebangh	29.982	78.6	23	18	5	8	1	5	15	40	5	...	...	...	49 N 23 W	62.9	8.76
Berhampore	29.966	75.6	29	13	1	...	...	...	7	6	14	43	...	...	40 N 14 W	26.5	8.35
Gya	29.970	73.2	7	6	9	15	7	1	1	21	52	...	...	...	9 N 43 W	20.9	9.05
Patna	29.981	72.4	10	19	10	5	5	14	11	10	27	...	...	...	15 N 27 W	23.6	9.47
Monghyr	29.981	73.5	15	6	...	...	...	38	25	10	23	...	...	...	44 S 87 W	31.4	8.95
Darjeeling	30.015	71.7	1	3	16	25	14	15	31	7	8	...	...	...	80 S 17 W	...	6.05
Gowalparah	29.995	72.9	1	9	78	18	3	8	5	...	...	...	...	...	71 S 81 E	...	6.32
Shillong	29.916	71.9	19	...	13	4	3	...	6	12	33	...	...	...	26 N 3 E	40.2	7.01
Benares	30.009	70.2	...	6	14	3	2	16	28	3	47	...	...	...	19 S 67 W	28.6	9.18
Roorkee	...	69.8	...	7	...	13	...	13	...	5	82	...	...	...	8 S 6 E	30.4	9.67

NOTE.

Barometric Pressure.—The pressures in column 2 of the above table for all stations below 500 feet are reduced from those given in column 3 of the table on the previous page by adding the weight of a column of air of the corresponding temperatures given in column 17. For stations of above 500 feet elevation, the reduction is made by Dippe's tables as given in Guyot's "Meteorological and Physical Tables." The temperatures at the sea-level are taken from column 3 of the above table.

Temperature.—The temperatures in column 3 are reduced from those in column 17 on the preceding page by adding 1° Fahr. for every 350 feet.

Wind Resultant.—The resultant wind direction and the comparative predominance are calculated from the whole number of wind observations recorded during the month. The relative predominance in the direction of the resultant is given as a percentage of the whole number of observations. The direction is computed in the usual way by Lambert's formula.

Serenity.—This column gives the average proportion of unclouded sky; a cloudless sky being indicated by 10 and one completely overcast by 0.

The above being all comparable, afford the data for constructing a meteorological chart for the month, which shall show the isobaric and isothermal lines and the resultant wind directions, which last may be represented by arrows of varying length, proportioned to the prevalence of the wind. To these may be added the rainfall from the previous tables.

CALCUTTA,
The 15th February 1873.

HENRY F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 8th to 14th February 1873.

1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.		
Feb.	8th	29.998	84.0	69.0	135.0	72.8	60.5	61.5	0.60	WNW & W by N	...	20.5	...	Clear. Slightly foggy at 5 and 6 A.M.
	9th	.948	80.5	65.2	141.0	75.2	68.9	64.5	.71	W & S by W & S W	...	50.8	...	Chiefly clear. Slightly foggy from 4 to 7 A.M.
	10th	.972	84.3	67.5	135.0	74.8	65.8	59.5	.61	N & N by W	...	102.6	...	Clear. Slightly foggy from 8 to 11 P.M.
	11th	.960	84.3	63.0	139.0	73.1	63.4	55.6	.56	NNE & NW	...	75.0	○	Clear. Slightly foggy at Midnight and 1 A.M., and from 8 to 10 P.M.
	12th	30.005	83.0	62.6	136.5	71.8	61.0	52.4	.53	NNE & NE	0.2	101.4	...	Clear. Foggy from 8 to 11 P.M.
	13th	29.998	81.5	59.5	138.7	69.6	59.9	52.1	.56	NE & NW	0.2	90.0	...	Clear. Foggy from Midnight to 6 A.M.
	14th	.982	82.2	58.5	135.0	69.0	59.0	51.9	.55	NW	...	102.9	...	Clear. Slightly foggy at 9 and 10 P.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

- The extreme variation of temperature during the past seven days
- The max. temperature during the past seven days
- The max. temperature during the corresponding period of the past year
- The mean humidity during the past seven days
- The mean humidity during the corresponding period of the past year

...
..
open.

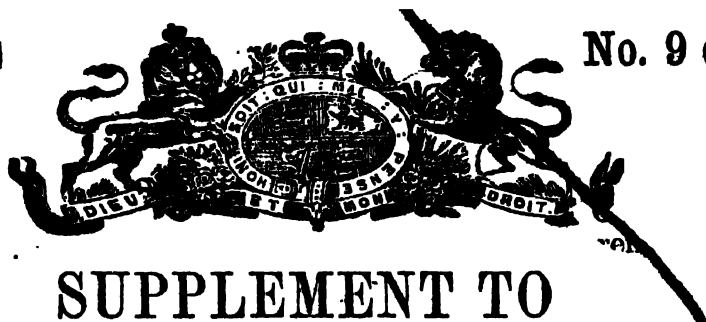
The total fall of rain from 8th to 14th ... (by lower rain gauge)
Ditto ditto ditto ... (by anemometer gauge)
Ditto ditto between the 1st January and the 14th Feb. ...
Ditto ditto ditto ditto, average of nine years

	£	s.	d.	£	s.	d.
(by lower rain gauge)	2,008	6	11	5,774	10	8
(by anemometer gauge)	17	4	10	36	18	0
average of nine years	9,636	5	3	20,681	5	2
139,504 4	20,566	7	2	2,435	5	2
904 23	109	12	1	15	11	3
629,637 26	1,27,700	8	5	11,711	7	8

The 17th February 1873.

the Salt

Bill to
as' Act.
which



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, FEBRUARY 26, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, the 15th February 1873.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *presiding.*
 The Hon'ble G. C. PAUL, *Acting Advocate-General.*
 The Hon'ble F. L. BEAUFORT,
 The Hon'ble V. H. SCHALCH,
 The Hon'ble C. E. BERNARD,
 The Hon'ble MOULVIE ARDOOL LUTEEF, KHAN BAHADOOR,
 The Hon'ble B. D. COLVIN,
 The Hon'ble T. M. ROBINSON,
 The Hon'ble F. F. WYMAN,
 The Hon'ble RAJAH JOTEENDRO MOHUN TAGORE, BAHADOOR,
 AND
 The Hon'ble BABOO DEGUMBER MITTER.

SALT ACT AMENDMENT.

ON the motion of the Hon'ble Mr. Beaufort, the Bill to amend the Salt Act 1864, was passed.

MOFUSSIL MUNICIPALITIES.

THE HON'BLE MR. BEAUFORT moved for leave to bring in a Bill to amend the District Municipal Improvement Act and the District Towns' Act. This Bill had been prepared with reference to the remarks which

made by His Honor the President at the last meeting of the Council in relation to the Municipalities' Bill which had not been assented to by the Viceroy. The Bill which Mr. Beaufort now moved for leave to bring in was a very short one. It was intended to remove three defects in the present municipal law. The first section of the Bill provided that the Lieutenant-Governor might, if he thought fit, direct that in any Municipality created under Bengal Act III of 1864, the Municipal Commissioners should be elected instead of being appointed by the order of Government. The second section empowered the Lieutenant-Governor to delegate to the Municipal Commissioners appointed under Act III of 1864, the power of electing their own Vice-Chairman, instead of leaving it to the Government to appoint him. And the third and fourth sections were intended to empower municipal bodies to expend a portion of their funds on objects other than those enumerated in the laws by which they were governed. As regards the District Municipal Improvement Act, it was proposed to give the Municipal Commissioners power to expend a part of their funds in the establishment and maintenance of schools, the establishment and maintenance of hospitals and dispensaries, and the promotion of vaccination. And as regards the District Towns' Act, it was proposed to allow the Committee to establish and maintain schools where the majority of the Committee was of opinion that any school was required. It was not proposed to make such expenditure in any way compulsory, but merely to give the municipal body power to devote a portion of the municipal funds to that purpose, if they thought it right to do so. Under Bengal Act VI of 1868 the Municipality was already empowered to expend a portion of its funds on the establishment and maintenance of hospitals and dispensaries and the promotion of vaccination. The exercise of these powers would, under the Bill, be wholly voluntary. He thought that it would be unnecessary to trouble the Council with any further explanations on the present occasion.

HIS HONOR THE PRESIDENT said, the hon'ble member in charge of the Bill had explained its object and its character; and it was not necessary that His Honor should add many words of his own to what had been already said. The hon'ble member had told the Council that the object of the Bill was to implement (if he might use such a word) the sanction which had been accorded by His Excellency the Viceroy in regard to the alteration of these provisions of the existing Municipal Acts. The Bill which was placed before the Council was confined as far as possible to the particular provisions in regard to which the Viceroy had intimated in the letter before the Council that he was willing to consider amendments in the present law. There was only one small provision in regard to which the Bill went somewhat beyond the four corners of that letter. The Viceroy had told us that he was willing to consider any proposal for legalising voluntary contributions by Municipalities towards the furtherance of education. In considering the Acts with which the Council were now dealing, HIS HONOR found that whereas neither of the Acts admitted of contributions for education, one of the Acts (and that the Act most lately passed and approved by the Council, namely, Act VI of 1868) admitted of the application of the funds of Municipalities to the establishment and maintenance of hospitals and dispensaries and the promotion of vaccination. He thought that possibly the Council which passed that law would be willing, as most consonant with the views expressed in their latest enactment, that such voluntary power should be extended to Municipalities constituted under Act III of 1864. And in that view we had ventured to put that provision in the Bill. HIS HONOR had no wish, by any influence of his own, to press that provision on the Council; but if the Council thought proper to accept that provision, he should be glad that such a law should be enacted.

The motion was agreed to.

THE HON'BLE MR. BEAUFORT said, that as leave had been given to introduce the Bill, he begged to apply to His Honor the President to suspend the Bill, to enable him to move that the Bill be read in Council. The whole of Municipalities had already been so thoroughly discussed by the Council that he thought it was scarcely necessary to postpone the motion for the

reading of the Bill in order again to consider the subject. He proposed to avoid the delay of a week by asking for the suspension of the Rules, in order that the Bill might now be read in Council and published for general information.

HIS HONOR THE PRESIDENT said, considering that the principle of the provisions of the Bill had so lately been sanctioned by the Council, and that His Excellency the Viceroy had also intimated his concurrence in that principle, he thought he should not be wrong in suspending the Rules, in order that the Bill might now be read in Council. He would therefore declare the Rules suspended.

The Rules having been suspended—

THE HON'BLE MR. BEAUFORT moved that the Bill be read in Council, and referred to a Select Committee, consisting of the Hon'ble Messrs. Bernard, Robinson, Wyman, Degumber Mitter, Rajah Joteendro Mohun Tagore, and the mover, with instructions to report in a fortnight.

HIS HONOR THE PRESIDENT said, before putting the motion to the Council he should wish to say one word. He had already informed the Council that he was not prepared to undertake another general Municipal Bill, nor to attempt reforms of a very radical character. The reforms proposed were confined to one or two limited things. He had considered whether it might be possible so to amend our latest Act, VI of 1868, as to make that Act admit of real self-government. But he had come to the conclusion that the structure of that Act was so entirely of a different character, that its principal provisions were so entirely drawn on other principles and with other views, that it would not be possible so to amend the Act without making a radical alteration in the construction of the Act. So much freedom of self-government was conceded by the Act, that under section 42, in case the Magistrate of the district was the President of the Committee, the preparation of the budget and other functions might be entrusted to the Committee sitting with the Magistrate. Under these circumstances, also, power was reserved to the Commissioner of the division to alter the budget and insert such things in it as he might think fit. The whole Act, therefore, being of a different structure, HIS HONOR had not ventured to propose any alteration of that Act beyond the power voluntarily to contribute towards education, as had been suggested by His Excellency the Viceroy.

Then, as regards Act III of 1864, the circumstances were materially different. That Act was not in such detail as Act VI of 1868. It did not contain many express provisions beyond carrying out the somewhat general provisions of the old laws on the subject of Municipalities. Sections 15 and 16 were the provisions in the Act regarding the objects to which the municipal funds might be applied, one being compulsory, the other voluntary; that was to say, Section 15 laid down that certain things—the construction and maintenance of roads, conservancy, and such like—should be done by the Commissioners. Section 16 laid down that certain other things might be done by the Commissioners with the sanction of the Lieutenant-Governor. We proposed to put education amongst the things enumerated in Section 16, that is, to make it a voluntary subject to which the municipal funds might be applied. As regards Section 16 it seemed to HIS HONOR that the Act might so far be ineffectual that although things to be done were compulsory, no means were provided for remedying the neglect of the Commissioners to do those things. The only remedy in the hands of the Government was that the Commissioners might be removed at the pleasure of Government and others might be appointed in their stead. If we parted with this power, it might be necessary to introduce into the Act express provisions to enable the Government to remedy laches and neglect on the part of the Committee, which would have amounted to a radical reconstruction of the Act.

Without some radical re-construction of the Act elective institutions could not be attempted on any large scale, but it could only be done on a comparatively limited scale. And being anxious that the trial of

self-government should be made under favorable circumstances, His Honor was ready to risk it so far as to let the Bill err rather on the side of too great freedom than a restriction of freedom; rather there should be wanting some power on the part of Government, than there should be too much power. Although there might be some difficulty in enforcing the provisions of Section 15, he would rather that in the towns selected for the trial of self-governing Municipalities, the elected Commissioners should have too much than too little freedom of action. And if in any degree they failed in performing their duties, we would be repaid by their using in a real manner the freedom of self-government.

There was only one more provision in respect of which His Honor had somewhat hesitated whether he should recommend any alteration. The Council were aware that the District Municipal Improvement Act, III of 1864, provided for the taxation of real property by a house-rate levied on the letting value of the property. He was told by many experienced men that in towns in the interior that system of assessment was difficult of operation; and although the law was nominally carried out it was not really obeyed, and it was suggested that the assessment should be made, not on the real letting value of the property, but on the means and capacity of the householder. It would be for the Select Committee, to whom this Bill would be referred, to consider whether by some means we might not introduce an alternative provision corresponding to the mode of assessment laid down by Act VI of 1868; that was to say, providing that instead of the tax being levied on the letting value of a house, the assessment might be made on householders according to their means and substance, if the Municipality so desired. His Honor did not intend to propose to the Council any such provision, but merely threw out the suggestion, if in Committee hon'ble members thought the change desirable and found it possible without a radical re-construction of the Act, he should be prepared to agree to it.

The motion was agreed to.

EMIGRATION TO THE LABOR DISTRICTS.

THE HON'BLE MR. BEAUFORT moved for leave to introduce a Bill to amend the law relating to the emigration of laborers to the districts of Assam, Cachar, and Sylhet, and to regulate contract-labor and service. In doing so, he said hon'ble members might think, from looking at the Bill placed before them, that it was a very long Bill, and would entail a great deal of trouble. He might re-assure their minds by telling them that it was only an old friend in a new dress. It was indeed little more than the present Act II of 1870 re-arranged throughout with some modifications. It was found necessary to make some amendments in the law, and the opportunity had been taken to divide the Act into Parts and Chapters. Most of the alterations were of such a nature that they would be most conveniently considered by the members of the Committee, whom the Bill would in due course be submitted if he obtained leave to reduce it.

As the present law had not been sub-divided into Parts and Chapters, it was somewhat difficult to find the provisions relating to any particular question. The re-arrangement of the Act in the Bill was made with the object of clearness and convenience only; but as hon'ble members had not had an opportunity of seeing the Bill, he would not trouble the Council with any lengthened remarks on the present occasion. As he believed, however, that none of the members of the Council as at present constituted, were in the Council at the time the previous discussions on this subject had taken place, perhaps it might be convenient to say a few words regarding the course which legislation had taken. The Council were aware that tea had become an important branch of the industry of the country. From the first, however, it had been found impossible to cultivate it by indigenous labor: very little was to be had in the producing districts, and the planters consequently found that it was

absolutely necessary to import labor from other districts. But the emigration of coolies from Behar or the Sonthal Pergunnahs or Chota Nagpore to districts so far east as Assam and Cachar, was a very different thing from the annual emigration of Bhunwa coolies to the indigo factories; and therefore it soon became necessary that the Government should interfere for the purpose of regulating the emigration of such large bodies of men to districts far from their homes, of which the emigrants were utterly ignorant. It was about ten years ago that this subject first came before the Council, and Act XI of 1863 was passed for regulating the recruiting and transport of laborers. After the experience of two years it was found necessary to enact further rules for the protection of the emigrants after they had arrived in the tea districts. A very short time had however elapsed before considerable defects in the law were found, and a Bill was introduced in 1867 for consolidating and amending the law, and was thoroughly discussed in Council, and he believed was passed through all its stages but did not become law. The subject then remained in abeyance for two years more. In 1869 it was again taken up, and a Bill was introduced by the then Advocate-General, Mr. Cowie, with the assistance of the Hon'ble Mr. Eden, for consolidating and amending the law; and very considerable discussion took place, which resulted in the passing of the Act now in force, Act II of 1870. Since the passing of that law two more years had elapsed; and further experience had brought to light certain other latent defects which it was proposed to remedy by the present Bill.

The Bill did not propose any material alterations in any part of the law. But it provided for the amendment of certain small defects. The subject naturally divided itself into three portions: the first was the recruitment of laborers; the second, their transport to the tea districts; and the third, their protection after arrival at the plantations: and the Bill had been arranged accordingly. The recruitment of laborers had been formerly carried on solely by the agency of contractors, who were men of some substance residing in Calcutta, and who sent up their emissaries to the districts of Behar and other places, to collect coolies. Now, these emissaries, called recruiters, were men probably very little known to the contractors; they were men whom the contractors picked up with difficulty to undertake a work involving much trouble, hardship, and annoyance; and they were certainly entirely unknown to the officers of the Government who had to superintend the work of emigration. It had been found, consequently, that the men sent up had had recourse to much deception, and had induced the coolies to emigrate to the tea districts under contracts to labor for fixed periods, on representations which were very erroneous and by promises which were proved to be false. It was not surprising that considerable difficulties had arisen therefrom. Under the present law, the Superintendent of Labor Transport, on the prayer of the contractor, granted a license to recruit, and the recruiter had to produce this license to the Magistrate of the district in which he desired to recruit, and to obtain his countersignature. Practically, the Superintendent made an enquiry through the Magistrate, but the responsibility lay on himself, and it sometimes happened that he did not feel himself justified in refusing a license to a man for whose conduct he had no security beyond the respectability of the contractor. The Bill proposed to take away from the Superintendent of Labor Transport, who appeared in the Bill under the name of Superintendent of Emigration, the responsibility of giving certificates to recruiters, and to vest it in the hands of the local Magistrates, who were required before they enabled recruiters to go into the interior to recruit, to ascertain that they were men who could be trusted—men who would not hold out false promises of the advantages to be obtained in the unknown land to which the emigrants were about to consign themselves.

Another system of recruiting, more in favor with most planters, and which certainly appeared to be far superior to the system of obtaining emigrants through contractors and recruiters, was by men who were called "government sirdars." They were generally laborers who having proceeded to the tea districts under contract, and having worked out the terms of their contract, liking the place and liking their masters, desired that their friends and relatives

their native country should have the opportunity of obtaining the same benefits which they had enjoyed, and with this view undertook to return to their own country for the purpose of recruiting and importing fresh labor. These men having no desire, it might be assumed, to deceive their friends and relatives, and knowing exactly the circumstances of the tea plantations, the privations and benefits thereof, were much better able to lay before the recruits the exact state of things than the recruiters employed by contractors, who had personally no acquaintance with the tea gardens. It was reasonable therefore to presume that a cooly recruited by a garden-sirdar would proceed to a tea district with a more clear understanding of what was before him than a cooly recruited under the other system. But there were certain drawbacks to the garden-sirdar system, and a chief difficulty existed in regard to the transport of emigrants. Where a contractor had received a certain number of coolies at his depôt and proposed to despatch them to the tea districts, they were forwarded under a system of rules through the officers residing at the ports of embarkation, such as Kooshtea and Goalundo. The coolies were embarked generally on board steamers where the supervision was complete, and where during the whole progress up the river they were more or less subject to the inspection and supervision of the local Magistrates. But where a garden-sirdar who was not allowed to recruit more than twenty laborers, desired to carry his men to the tea districts, he sometimes found considerable difficulty in providing the means of transit. To carry them to Assam in country boats was exceedingly difficult and expensive, and to do so by land was impossible. The garden-sirdar therefore generally desired to put them on board the steamers plying on the river, and willingly paid for their passage. If such laborers held a certificate of registration, the local officers could not prohibit their embarkation, although they knew nothing of the state of their health. Now, during the progress of such a party of emigrants to the port of embarkation, the cholera might have been amongst them, and they might carry the seeds of it on board; and it was not therefore a matter of surprise to find that the cholera which had decimated the emigrants on board a steamer proceeding to Assam, had been traced to the garden-sirdar's coolies, who were allowed to embark at the last moment without a bill of health, and of whom the local officers had no previous knowledge. It was proposed, therefore, to invest such local officers with the discretion to detain such parties of emigrants until they had been able to satisfy themselves that their embarkation on board a vessel conveying other emigrants would not endanger the safety of others, and to avoid, so far as any precautionary rules could avoid, such frightful results as were to be found on record.

It was also proposed to provide that Government should have power to require contractors to establish and maintain hospital depôts at Calcutta and at the ports of embarkation, whenever such a measure might seem requisite, so that if the cholera or other infectious disease were to break out amongst coolies awaiting transport, the sick might be removed to such places for proper treatment, and segregated from the others.

Another point to which Mr. BEAUFORT wished to refer was this. By section 10 of the Bill it was proposed to give the Lieutenant-Governor the power of declaring that emigration to a particular district should entirely cease for a certain period. If at any time disease were prevalent in a tea district or in a district where recruiters were at work, or if experience should show that emigration from a district at one particular season of the year induced serious disease, it might be expedient to prohibit emigration for a certain period. The power to do so was specifically declared by section 10.

Another point to which he would allude was that contained in Chapter II of the present Bill, namely, the power to close an unhealthy garden. Under the provisions in the present Act, when much sickness had occurred in a garden, power was given to the local officer to convene a committee, who were to proceed to the spot and inquire whether such garden was fit for human habitation. But difficulties had occurred in the working of those provisions. The committee had sometimes found that, although they were unable to do so, they were unable to do so.

to account for the great mortality, they were not in a position to certify, ^{that} terms of the Act, that the garden was not fit for human habitation; and ^{the} fore the object of the law had failed. There had also been some difficulty found in convening committees. The sections of the Bill introduced in Chapter XIII were intended to provide, first, for enabling the committee to be convened with more ease; and, secondly, to give to the Government power to declare that where the mortality had arisen above a certain percentage during the past three years, the garden should be closed. That would prevent any failure in the obvious object of the present Act, of which object the Council would, he was confident, approve.

Then, as regards laborers who had worked out their time, that was to say, the term of whose contract had expired. Under the present law the position of time-expired laborers was somewhat indefinite. It was proposed to declare that the moment a man had served out his time, he was to be wholly relieved from all the provisions of this law. Under the present law, although the term of contract had expired, if a laborer remained with his employer, he was still subject, as was his employer, to various provisions of the law. Considerable difficulties and great discontent had arisen from this state of the law. The subject was discussed at much length when Act II of 1870 was before the Council, but it seemed unnecessary to revert to that discussion on the present occasion. The Bill provided that when the term of contract had expired, the laborer and employer should be entirely relieved from the obligations which under the law the contract imposed, but at the same time it gave to the laborer full liberty to re-engage himself if he so pleased. He might make a new contract; and Mr. BEAUFORT understood that a large proportion of laborers who worked out their time did not wish to return home, and did enter into fresh engagements with their employers or in other gardens. It was therefore declared that fresh contracts might be made without restriction; but at the same time it was provided that where the contract extended to a period of six months, such contract should be registered, and that in such case both parties to the contract should be subject to certain provisions of the law, namely, those relating to the regulation of labor, to house accommodation, food, medical attendance, and so forth. It was obviously right that these men, who were scarcely able to protect themselves, should have the opportunity of placing themselves under such rules if they pleased. But if they wished to be free laborers they would only have to reduce the period of contract within six months, and then they would be wholly untrammelled by any of those provisions of the law. In connection with this part of the Bill it was proposed to make what was in reality a new law for regulating contracts of service and labor. In Part IV provision was made for the summary trial of complaints by employers for neglect of work, and of complaints by laborers for arrears of wages. That Part would apply only to those contracts to which the previous Parts of the Bill were not applicable. At present Act XIII of 1859 had been extended to the contracts of service made in the tea districts. But Mr. Beaufort thought it was admitted that the application of that Act to such cases was scarcely in accordance with the spirit and intention of the law. It was moreover a one-sided law, and did not sufficiently provide for these cases. Therefore it was proposed to give the Magistrate a summary power of hearing the complaints of both parties and of summarily adjudicating upon them.

He had omitted to say that in arranging the Bill he had introduced somewhat new nomenclature. It was proposed that the chief officer employed in the superintendence of emigration should be called the Superintendent Emigration, and that he should have as his subordinates certain medical inspectors and certain embarkation agents at the ports of embarkation. That referred to those parts of the law relating to recruitment and transport, did not affect the provisions regarding the inspection and protection of labor on the spot, which had not been altered.

The only other matter to which he need refer now, was contained in the provisions of the Bill which provided for the extension of the law. Part IV of the Bill, which he had just alluded to, and which contained rules for the summary trial of cases arising between master and servant, might have a more general application.

was proposed to give the Government power to extend those provisions to other districts. The Part had been framed with the view of providing a general law for regulating the relations between employer and employed, and might be found useful in other districts. But an extension of greater importance than that was to be found in Section 13, which enabled the Lieutenant-Governor to declare, by notification published in the Gazette, that the emigration of natives to any province in British India, and to any place in Bengal other than the tea districts, should be regulated by the provisions of this Act. The emigration of natives of India to the West Indies and foreign countries is regulated by Act VII of 1871 of the Imperial Legislature; but that Act does not apply to emigration to any portions of British India. Now, if it was desired to import laborers from India into British Burmah for instance, there was no law applicable. It was thought, however, that the recruiting of emigrants in Bengal should be regulated by one set of rules, whether such emigrants were intended for districts which were within the territory subject to the Government of Bengal, or for districts situated in some other province. Section 13 had been framed with this view. If the Council of the Governor-General would accept it as sufficient, then whenever it was desired to regulate emigration to British Burmah or other place, the Lieutenant-Governor would be enabled to declare that this law was applicable to such emigration, and it would be left to the Imperial Legislature to provide rules for the care and protection of coolies from the time when they left Bengal.

The provisions which Mr. Beaufort had touched upon were those which involved the most material alterations of the existing law, and he thought he might leave the consideration of all other matters for the present. He would now ask for leave to bring in the Bill.

HIS HONOR THE PRESIDENT said, he thought it might be well, in order that the Council might labor under no suspicion of not sufficiently directing public attention to the subject of one important change that we were making in the existing law, to say that it seemed to him the hon'ble member in telling us that all the changes were of a minor character, had perhaps not sufficiently placed before the Council the importance of the change proposed in regard to time-expired laborers. In His Honor's opinion that was a considerable change. The present law was this, that any imported laborer in these districts who had completed his period of service, if he should in any form contract again, should be subject to all the provisions of the law. Now, that provision of the law did not provide any form of contract in such cases. The consequence was that it had been considered, and His Honor believed rightly considered, that even a verbal contract was sufficient to bring a laborer under the provisions of the law. That being so, a verbal contract bringing the laborer under the provisions of the law, the result was that under the present Act most time-expired laborers were still under the law. But in practice it was found difficult to carry that out, and for this reason, that as there was no registration and no written contract, it was almost impossible for the district officers to say what laborers were under contract and what laborers were not under contract. They had told us that they were wholly in ignorance as to what proportion of time-expired laborers were under the law; that the returns of births and deaths were vitiated because they did not know how many were re-contracted and how many did not. When we came to consider this matter, it seemed to His Honor and his advisors that there was a considerable wide distinction between coolies imported and coolies engaged on the spot without being imported. The Council were aware that a cooly imported under contract was imported at a considerable expense to the capitalist who imported him, and it had been considered, and probably wisely considered, that having regard to that expense, it was necessary the capitalist should be protected by special provisions in that behalf; that it should be made penal on the cooly to fail in his contract; and that speedy and summary remedies should be given for enforcement of the employer's rights. On the other hand, the cooly was a poor and ignorant man, imported into a country of which he was entirely ignorant. He did not know one district of Assam from another. It might be

his fate to go to a good garden or to an unhealthy garden : it might be his fate that to serve under a good master or under a master who was not good. Under these circumstances the law wisely laid down that the cooly, who was the object of special provisions in the interest of his employer, should also be protected by special provisions in his favor. But when we came to the question of the time-expired laborer who, knowing the country and knowing the nature of the work in which he was employed, chose to enter into a fresh engagement with his employer, the circumstances were materially different. In that case there had been no advance of capital which entitled the employer to the protection of those special provisions, and the cooly was not so ignorant as the cooly who came into the country knowing nothing about the garden to which he was going. Under these circumstances you had an employer who engaged men who were on the spot and who knew the circumstances under which they labored, and therefore those stringent provisions of the law were not necessary for their protection. On the other hand, these coolies being mixed up with the imported coolies under contract, and we thought it right and good for all parties that a summary law should be passed for the regulation of certain matters between them and their employers. We had taken care that the most stringent provisions of the law were not applied to these laborers or their employers, but certain provisions of a less stringent character were applied to both the employers and the employed.

The hon'ble member in charge of the Bill had told the Council that Act XIII of 1859, which was originally intended to apply to artisans in the presidency towns, had been extended to some of the labor districts. He had also said that doubts were entertained as to the applicability of this law, and we thought it right to substitute a somewhat summary law instead, under which the cooly who was not treated fairly, who was not paid his wages, should have a summary means of redress ; and the employer who was not treated fairly, whose contract was broken, should also have summary redress. This question had given rise to considerable discussion. The Council, and the Committee to whom the Bill would be referred, would no doubt carefully scrutinize the provisions of the proposed Bill. His Honor's impression was that under the circumstances a summary remedy should be given ; that the foreign cooly in Assam should be placed under some protection in regard to hospital accommodation and other matters ; and that a summary provision for the recovery of wages should be given in a legitimate way, and not by the doubtful twisting of the provisions of Act XIII of 1859. That was one point on which a somewhat important change was proposed to be made in the existing law.

The hon'ble member had explained some other points in regard to which provisions not of a radical character were proposed. He had explained that it was proposed to alter somewhat the law of recruiting. That had been suggested by experience of an extremely practical character. Considerable discussion had arisen in regard to the emigration of laborers to the colonies. The law in regard to emigration to the colonies and to the tea districts was with respect to recruiters on the same footing. One was taken from the other. In regard to emigration to the colonies, licenses were given to recruiters at the instance of the emigration agents in Calcutta. His Honor had no hesitation in saying that that power had been used in a very mistaken manner. It was the custom to give licenses to recruiters of whom they knew absolutely nothing. The sub-agent sent down the names of the recruiters, and the agents got them licenses. The consequence was that considerable abuses had resulted, and the Government and Magistrates of the North-Western Provinces in particular brought notice several scandals which had resulted from the abuse of those powers.

His Honor thought it his duty, as administering the executive government of these provinces, to alter that state of things, and to insist that the Director of Emigrants should ascertain from the Magistrates of the districts the recruiters carried on their recruiting that the men whom they were to license were of respectable character. Considerable agitation was made by the action which he had found it necessary to take, and we had Board's somewhat violent protests from the colonies on the subject, and the formed

thoroughly sifted and discussed. The result was that it was considered essentially necessary that it should rest, not with the distant emigration agents, but with the Magistrate of the District, to decide whether the men proposed to be licensed as recruiters were or were not respectable men to whom this function of recruiter might safely be entrusted.

There was another point of considerable importance which had been alluded to by the hon'ble member. He had told the Council that the law with regard to dealing with unhealthy gardens had not been found adequate for the purpose. His Honor confirmed that statement. The existing law laid down that in case any garden was found unfit for human habitation, a committee should be convened on which there should be at least one employer of laborers, and the Government should be represented by the magistrate, the inspector of laborers, or the medical officer of the district. It might often happen that an ignorant cooly might be taken to such a garden where the chances of living were against him. On the other hand, it was sometimes difficult for the committee to say, however honestly inclined, that an unhealthy garden was unfit for human habitation. There were persons who could live in the most unhealthy and malarious places. It might be that the garden was not absolutely unfit for human habitation, and yet it might be a cruel wrong to force the laborers to remain and labor in it when the mortality might be 8, 10, or 12 per cent. Therefore we thought it necessary to define the circumstances under which the garden should be pronounced so unhealthy as to justify the interference of Government in behalf of the laborers. We had taken a standard which had met the approval of the Secretary of State for the Colonies in regard to some of the colonies in which this question had arisen. When for a series of years the mortality in any garden had exceeded 7 per cent., it should be considered to be a place in which the contracts of laborers should not be enforced. The hon'ble member had used the term "closed;" that was a term which might be the subject of some misconstruction. What was meant was that the garden should be closed to imported laborers. If the proprietor of the garden could induce coolies on the spot—natives of the country, who could resist the climate—to engage for labor in that garden, he would be perfectly free to carry on the garden. It was in such places that a large number of indigenous laborers would be valuable to the tea-planter in consequence of the close of the garden to imported laborers, but the proprietor must pay such prices for his labor as would induce indigenous laborers to work. We proposed a standard of 7 per cent., and declared that mortality in excess of that proportion should be taken as the guide to determine whether or not a garden was unhealthy.

His Honor need not allude to any minor points at this stage. In most other respects the Bill was, as the hon'ble member expressed it, an old friend with a new face. We would not proceed with the Bill in a hasty manner. We would give the Council and the public due time for its consideration. He proposed that the Bill, if leave were given for its introduction, should be published in the Gazette, and proceeded with in due course from stage to stage. He had no doubt that hon'ble members who were interested in the subject would give the Council their advice, and that we should ultimately arrive at a satisfactory conclusion.

The motion was agreed to, and the Bill ordered to be published in the Gazette.

EMBANKMENTS AND WATER-COURSES.

THE HON'BLE MR. SCHALCH moved that the report of the Select Committee appointed to consider certain amendments in the Bill to amend the law relating to embankments and water-courses, be further considered in order to the settlement of the clauses of the Bill. In doing so, he said he might observe that at the meeting of the Council the report of the Select Committee was brought under consideration, and the Council had so far proceeded as to consider an amendment proposed by the hon'ble member opposite (Baboo Degumber Mitter) in Section 6, with the understanding that the remaining amendments proposed by the hon'ble member should be first considered, inasmuch as he

was of opinion that if they were carried they would involve such an important alteration in the Bill as to render it necessary that the Bill should be recast.

The motion was agreed to.

The adjourned debate on Baboo Degumber Mitter's motion in Section 6 was then resumed.

THE HON'BLE BABOO DEGUMBER MITTER said,—“ With your Honor's permission I would address a few words in reply to what has been advanced by the hon'ble member in charge of the Bill against the amendment I moved at the last sitting of the Council. The hon'ble member commenced by observing that I had not confined myself to the amendment I proposed with respect to Section 6, but had taken that opportunity of commenting upon several other sections of the Bill. True enough, but the hon'ble member did not undertake to state that the sections I commented upon had no connection with the clause I objected to; nor do I think he would deny that those sections were the necessary corollaries of the clause in question, and would have had no place in the Bill but for that clause. How could I, under the circumstances, help alluding to provisions in the Bill which, in an attempt to mitigate the injustice involved in the clause objected to in one direction, committed a grosser one in another, and where again such injustice was least merited; and that is precisely what the apportionment clauses of the Bill are calculated to effect. If, again, I have made allusion to an Act of this Council passed in 1866 and the Hooghly and Burdwan Drainage Act, it was also in connection with the same provisions of the Bill. The hon'ble member next said that the clause I had objected to was not an innovation on prior enactments, but was simply a re-enactment of clause 3 of Section 4 of Act XXXII of 1855. With every deference to the hon'ble member, I must say that the wording of the clause in question, considered in connection with the other parts of the section, will hardly bear that construction. The clause provides that the Superintendent of Embankments ‘may also, when necessary, change the line of any *public embankment*, or make a new embankment.’ I am perfectly aware that any embankment taken charge of and maintained by the officers of Government would constitute a public embankment under the definition given in the Act. But as Section 4 lays down for the first time under what circumstances private embankments are to be taken charge of by the officers of Government, the distinctive character of the two classes of embankments is necessarily preserved and expressed in this section by the words *private* and *public* embankments. For instance, Clause 2 of the section provides that the Superintendent of Embankments ‘may cause any private embankment which endangers the stability of a public embankment,’ &c., &c. I therefore respectfully contend that the words ‘public embankment’ used in Clause 3 is meant to be an embankment maintained at the expense of the State, and the words ‘new embankment’ immediately following it, is a new *public embankment*, and not *private embankment*. If there should still be any doubt in the matter, it is cleared up by Section 6 of the Act, in which provision is made as to the party from whom the cost of private embankments taken charge of by the State is to be recovered.

“ The section runs thus :—

“ VI. Whenever the Superintendent of Embankments shall hereafter cause an embankment, which any person is bound to keep up, to be taken charge of by the officers of Government, the expense of keeping up such embankment shall be charged to such person, provided that the amount so charged shall not exceed the reasonable expense of keeping up any embankment of the size and description which such person was bound to keep up, notwithstanding the embankment shall have been enlarged or improved by the officers of Government.”

“ Now, in this section no provision is made for the recovery of the cost of a new embankment, which must have been done if the ‘new embankment’ mentioned in Clause 3 was meant to be one which was to be maintained at the cost of the zemindar. But while Section 6 was quite silent upon the subject of the new embankment mentioned in Clause 3, Section 7 provides for payment of compensation by the State for injury sustained in the exercise of any of the powers vested in the Superintendent of Embankments by C’

mand 4 of Section 4, which I need not say would hardly be compatible with the supposition that the works mentioned in Clause 3 were those which were contemplated to be done at the cost of the zemindar. I therefore cannot but conclude that Clause 3, Section 4, Act XXXII of 1855, provides for works which are to be maintained at the cost of the State and not of the zemindar, as is contended by the hon'ble member; and consequently the clause objected to by me is not a re-enactment of Clause 3, Section 4, Act XXXII of 1855. Passing over that portion of the hon'ble member's speech wherein he warmly expatiates on the different checks he has provided against an abuse of the power vested in the Engineer by the clause in question, I would proceed on to that part of the hon'ble member's speech wherein an attempt is made to show the necessity for the clause in question. He first mentions the fact of a bund or dam thrown up by a zemindar of the 24-Pergunnahs across a water channel, which benefited him, but injured others by causing their lands to be inundated. I really do not see what connection this has with the clause objected to. The act of the zemindar complained of was calculated to obstruct the drainage of the country, and hence summary power was intended to be given to the Engineer for the removal of such obstructions. The Bill makes ample provision for the same, and nobody objects to it. But the object of the clause in question is something totally different. It provides for the making of any embankment, wherever the Engineer liked, at the cost of the zemindar, which, so far as the drainage is concerned, it must to a certain extent obstruct rather than facilitate, even if provided with sluices. I do not therefore see what the hon'ble member has gained by citing the case of the 24-Pergunnahs zemindar. The hon'ble member then says that the zemindar may be opposed in making an embankment to run through the property of his putneedar, durputneedar, &c., and hence the necessity of Government interference in the matter. But I do not see the necessity of a zemindar's passing an embankment at all through the property he has given away in putnee. The putneedar is to make the embankment, and not the zemindar. In case the zemindar should have given away a solitary mouzah in putnee out of many, and if it so happened that for the protection of the whole property the embankment must run through the putnee mouzah, power in such cases is always reserved, when the putnee arrangement is made, for the construction of such embankment by the zemindar, and the putneedar is made to contribute a portion of the expense. But while the hon'ble member has indulged in supposititious cases, which however do not at all make out the necessity, he does not state a single instance of any representation having been ever made by a zemindar to that effect, nor is there anything before the Council proving the actual necessity for such a provision; and unless the necessity is clearly made out, this Council will not be justified in enacting a law which interferes with private rights, and is opposed to the decision come to by the Government of 1837."

THE HON'BLE MR. SCHALCH said, he did not know how far he was prevented by the Rules of the Council from offering a few explanations rendered necessary by the remarks which had fallen from the hon'ble member opposite (Baboo Degumber Mitter). He believed that the strict rule as to each member speaking only once in a debate did not apply to amendments moved during the settlement of the clauses of a Bill.

[HIS HONOR THE PRESIDENT observed that it was desirable that the hon'ble member in charge of the Bill should have an opportunity of making any explanation he considered necessary.]

THE HON'BLE MR. SCHALCH said, the hon'ble member's amendment brought two questions for disposal. One was the power of the Engineer to make any embankment, and the other was as to the person who should pay the cost thereof such work. The question of cost did not fall within the purview of the clause in question, but came within a subsequent section which referred to the mode in which payments of all costs incurred were to be recovered, and he thought it would be better, if the hon'ble member objected to the cost of these works being thrown upon the zemindar, that he should move an amendment to that effect in that

section. MR. SCHALCH would now confine his remarks strictly to the power of the Engineer to make an embankment. Referring to the existing law, he thought that nothing could be clearer than the power of the Engineer to make a new embankment under certain conditions as to publication, and so on. It was distinctly declared that the Engineer could make new embankments. As to how the costs incurred in so doing, and the compensation to be awarded, should be assessed, was a different question. If the Engineer had before the power of making new embankments, that power should be maintained. And even if the zemindar was desirous of making a new embankment, it was necessary that the opinion of a professional person should be taken, to see that the embankment was so made as not to injuriously affect the interests of third parties. That power was given by the present law, and should be retained under the new law. MR. SCHALCH would not at present refer to the question of the apportionment of costs. That question could be better discussed when the Council came to a subsequent amendment of the hon'ble member in regard to throwing on the Government the burden of maintaining at their own expense all embankments now maintained by them without regard to the question how far they were obliged to maintain them, and how far reasons of State might induce them to maintain embankments which they were under no obligation to maintain, or how far they should maintain them merely because those who should do so would not maintain them. However, MR. SCHALCH thought it was necessary that we should have a professional officer to determine that question. The hon'ble member had mistaken the reference made to the case which gave rise in some measure to the Bill now under consideration. MR. SCHALCH meant to refer to that case merely as an example of the necessity which existed that a third party should be entitled to interfere, in justice to other parties whom the work about to be constructed might be calculated to injure. The hon'ble member had also said in the rest of his observations that although the zemindar, by the process of infeudation, might not often be able to make an embankment which should run through the land of his putneedar, yet that when an estate was given in putnee the liability to maintain embankments devolved on the putneedar. That was always the first argument which a zemindar brought forward to evade his responsibilities. The hon'ble member seemed to think that it was quite within the competency of the zemindar to transfer his liabilities to a third party by contracting with such person to perform the services which the zemindar was bound to the Government to perform. So it might be as between the zemindar and a third party. But it was quite a different thing as to how far the zemindar was authorized to throw over the liabilities which the Government had thrown upon him. The Government looked to the zemindar, and he could not say—“I have thrown the liability on this man, who might perhaps be a man of straw. I reap the benefit, but I don't wish to burden myself with the liability. I have nothing more to do with it.” It was a common practice to condition with the putneedar that he should pay the Government revenue, but MR. SCHALCH had never seen the argument carried to the length of saying that the zemindar who let his estate in putnee on such a condition, had thereby freed himself from his liability for the payment of Government revenue. The zemindars seemed to acknowledge that the liability for the payment of revenue did rest with them, and could not be transferred to a third party. In the same manner, although the zemindar might contract with a third party for the maintenance of embankments, he must still remain the responsible person, and he might fairly say that although the responsibility rested with him, the parties with whom he contracted would not let him fulfil his obligations. The real question at issue was as to the liability of the zemindar to maintain embankments; but that question would be discussed more appropriately in connection with a subsequent amendment of which the hon'ble member had given notice. Unless the Council prepared to say that in no case were new embankments necessary, they were prepared to admit that if new embankments were necessary, a professional person must, under the safeguards provided by the Bill, which obliged the Collector to see justice done to all parties, have authority to determine when such works were necessary.

HIS HONOR THE PRESIDENT said, as he understood the amendment it amounted to this, that the hon'ble member would take altogether out of the Bill all power to make new embankments. He would restrict the provisions of the Bill to existing embankments and take away all power to make a new embankment. After having heard what had fallen from the hon'ble member in charge of the Bill, HIS HONOR was quite convinced that the present law did give the public officers power to make new embankments. Therefore, the effect of the amendment would be retrograding, and would take away from the public officers the power which they now had. What he understood had rendered a revision of the law necessary was, that while under the existing law the power to make a new embankment did exist, no definite provisions were laid down as to the parties by whom the cost of such works should be borne: the present law was not sufficiently definite to enforce that obligation, and did not make sufficient provision for an equitable apportionment of the cost among the various parties interested in the construction of the work. If the amendment were accepted by the Council, the result would be that whenever by a change in the course of rivers or streams a new embankment was rendered necessary, we should be quite powerless to provide for the safety of the country. It was well known that great and frequent changes took place in the features of the country; that the course of rivers changed, and the features of the country changed with the course of great rivers. Embankments which were sufficient for the protection of the country one day were wholly useless another day, and the country could only be protected by new embankments. It would be most dangerous and might be most destructive to the country that this power should be taken away from the officers of Government. If this power were to be taken away, if the hands of the Government were to be so much tied down in the future, the Bill might be called a Bill to relieve the zemindars from their existing obligations, and to enable them to cast on their sub-tenants obligations which did not now attach to such sub-tenants. It was not desirable that this Bill should be passed with a one-sided character. HIS HONOR thought it necessary that this power should rest in the hands of the officers of Government, and should be regulated by such limitations as the Council thought fit. The hon'ble member had alluded to the summary character of the apportionment clauses, but that question would be properly dealt with when we came to the consideration of that portion of the Bill. The present amendment being of a sweeping character, having for its object wholly to take away the power to make a new embankment, HIS HONOR submitted that it was inexpedient to adopt it, and he trusted that the Council would not accept it.

The motion was then negatived.

THE HON'BLE BABOO DEGUMBER MITTER said,—“In stating my grounds for the next amendment on the paper I cannot avoid entering into a short review of the various changes which the Bill, as originally introduced, had undergone before it assumed its present form. The Bill as it was originally introduced, contemplated mainly, as I understand it, to vest the Engineer with summary powers for the removal of obstruction to the drainage of the country, and as it closely followed in its leading principles the prior enactments on the subject, especially Act XXXII of 1855, I saw no objection to support it at its first reading. In committee, however, its leading principles were entirely changed, even to the extent of totally absolving Government from the obligation of maintaining any embankment at the cost of the State. The Select Committee speaking their report in August 1871, and the Bill as amended by them was published in the *Calcutta Gazette*. It was then that petitions poured in from differ-

quarters, and amongst others the British Indian Association sent up their protest on the subject. The first notice taken in the Council of the labours of the Select Committee was in the speech of our President, delivered on the 9th

month of January 1871, in opening the session for 1871 and 1872, and it was done in these words:—

“The Government was anxious, by means of the Bill, to discharge itself of obligations which it undertook in the last century, at the time of the settlement. Speaking for himself, he might say that the Government had no objection, which par-

such wish; his impression was, as the hon'ble member in charge of the Bill would probably tell the Council, that any obligations distinctly undertaken by the Government as part of the basis of the decennial settlement, which afterwards became the permanent settlement, should be maintained intact, and the Government should not attempt to rid itself of those obligations. That was a point which would be fairly and impartially considered, and fairly and impartially laid before the Council.

"In the sitting of the Council held on the 9th of March, 1872, the Bill, after an able and exhaustive speech from the hon'ble member opposite, Mr. Bernard, was referred back to a Select Committee with instructions, I may with correctness say, so to amend the Bill as would maintain intact the obligations undertaken by Government in the matter of embankments. In what manner those instructions have been carried out, and how far the assurances of your Honor have been given effect to, would appear from Section 41. In that section mention is made of a schedule which is said to contain a specification of all the lines of embankment which after the passing of this Bill will be maintained at the expense of Government, and none that did not find a place there will be so maintained. How this important document was prepared, and whether it contains all the embankments which the State has undertaken to maintain at its own cost, and whether it does not contain others which the State is not at all liable to maintain, are questions which, though a member of the Select Committee to whom the Bill had been referred for settlement and report, I am yet totally unable to answer, and I may with confidence say the same for the other members, not even excepting the hon'ble member in charge of the Bill himself. For though the Bill with the schedule annexed comes before the Council with the sanction of his name, yet I doubt very much that he would venture to assure the Council that the schedule embraces nothing more or less than what it should embrace. One thing, however, is quite certain, that whereas Government now maintains at its own cost 1,329 miles of embankment, it would have to maintain only 864 miles if the Bill submitted by the Select Committee passed into law with the Schedule (E) preserved in all its integrity. I find the first figure from the notes of the hon'ble member opposite (Mr. Bernard), and the second by adding up the measurement given of the different lines of embankment in the Schedule (E). Now, Sir, the letter of the Sudder Board of Revenue, which I have so often cited, shows that the question of what lines of embankment Government had undertaken, and should on that account be maintained at the cost of the State, was fully gone into in the year 1837. The different points of enquiry necessary to arriving at a correct solution of the question had been carefully laid down, and a decision was come to after a most searching and thorough investigation of the subject in all its bearings, and we find that that decision has ever since become the basis of all Government action, executive or legislative, on the subject of embankments. It is to be presumed, therefore, unless in any one instance it is judicially proved to be otherwise, that the mileage of embankment (1,329) now being maintained at the expense of Government represents, as far as such works can represent, the total of the different lines of embankment which the Government of 1837, after a sifting enquiry, pronounced to be those which should be so maintained; and yet in the preparative of the schedule in question the Government decision appears to have been treated as if it was not worth the paper on which it was recorded. For instance, I do not find the embankments protecting the city of Moorshedabad on either side of the Bhaugeruthee, included in the schedule, though the question whether those embankments should be maintained at the expense of the State or of the zemindars had been specially raised, and decided by the Sudder Board of Revenue that they should be maintained at the cost of Government, and I have reasons which it is not very easy to controvert, as I have already had occasion to show whilst stating my grounds for the first amendment. But while the Moorshedabad embankments are thus summarily and unceremoniously excluded from the schedule, other lines are included in it whose presence there is irreconcilable with any possible principle which the hon'ble member in charge of the Bill might have adopted for excluding from, or including in, the schedule embankments which should be maintained at the cost of the State.

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chedule, therefore, cannot be depended upon as containing all the embankments which ought to be maintained at the expense of the State, I object to its being received by this Council and formed the basis for legislation on the subject; and relying, in view of the assurance already given, that it cannot be the wish of your Honor to depart from the liability already incurred by Government to maintain certain embankments at the expense of the State, and as the embankments in respect of which such liability had been incurred was, after much enquiry and careful consideration, determined by the Government of 1837, I beg to move that section 41 of the Bill be omitted and the following substituted in lieu thereof:—

“The provisions in this Part contained shall not apply to any embankment which at the time of the passing of this Act is maintained at the expense of the State, nor to any embankment which may hereafter be erected for the protection of any land which is, at the time of the passing of this Act, protected by any embankment maintained at the expense of the State.”

THE HON'BLE MR. SCHALCH said there were two very serious objections to the adoption of the amendment moved by the hon'ble member. But before proceeding to state those objections, he would refer to what had been said by the hon'ble member. MR. SCHALCH must say that he did not hear the hon'ble member's speech so distinctly on the last occasion as he should have done, and it was not until he saw the speech reported that he discovered that his remarks had more reference to the question then under consideration than MR. SCHALCH had at the time supposed. He hoped, therefore, that if in anything he mistook the hon'ble member's meaning on the present occasion, he would be kind enough to correct him. The hon'ble member's first objection was that since its introduction the Bill had imported a very different principle, and that the Bill as introduced did not cast upon the zemindar so distinctly as the Bill now did, the cost of constructing new embankments. If that was the intention of his remarks, MR. SCHALCH found, on reference to the former Bill, the following clause:—

“The cost of the construction, maintenance, and repairs of all works executed under the powers and provisions of this Act or any of them shall be borne by the owners of the lands benefited thereby, and shall be recovered from them as if the same were arrears of Government revenue.”

If the hon'ble member objected to that as a change made in the Bill subsequent to its introduction, it appeared to MR. SCHALCH that there really was no change. In introducing the Bill on 17th December 1870, he said that the object of the Bill was, first, to give power in cases of emergency to interfere at once in order to prevent inundations; secondly, to make more definite the definition of the word “embankment,” and to include within it many works which, although not, strictly speaking, embankments, were intimately connected with them, and the maintenance of which was essential for the efficient condition of embankments; and, lastly, another and one of the most important objects sought to be attained was the better apportionment of the expense of the construction and maintenance of embankments, and which the proprietors of estates in the vicinity of such embankments were bound to provide. So that it would be seen that the Bill originally, and the remarks introducing it, did provide for a change in the system, namely, that the parties who bore the expense in future should be the parties who derived benefit or protection from the works. When that Bill was submitted to a Select Committee, they struck out the provision which existed in it, and which was taken from the old Bill, keeping up the existing obligation of the zemindars. They threw out that provision, and submitted the Bill in this form, that the entire liability rested so much on the previous specific engagements, but in proportion to the benefit and the protection received from embankments. When that report was presented to the Council, it was observed by the British Indian Association, in a very important and temperate petition, that the Government could, under cover of the Bill, relieve itself from all the obligations it had undertaken to maintain embankments. But the Government had no desire to evade their obligations.

His Honor the President said on that occasion that there was no wish that the Government should avail itself of any such power. He said:—

“A suggestion had been made that the Government was anxious, by means of this Bill, to rid itself of obligations which it undertook in the last century, at the time of the decennial settlement. Speaking for himself, he might say that the Government had no such wish; his impression was, as the hon'ble member in charge of the Bill would probably tell the Council, that any obligations distinctly undertaken by the Government as part of the basis of the decennial settlement, which afterwards became the permanent settlement, should be maintained intact, and that the Government should not attempt to rid itself of those obligations. That was a point which would be fairly and impartially considered and fairly and impartially laid before the Council.”

On that occasion the Bill was re-committed chiefly for the purpose of ascertaining what embankments the Government were bound to maintain, and for other minor reasons. That proposal came before the Committee, and it became MR. SCHALCH'S duty to prepare a schedule of the embankments which the Government were bound to maintain. The schedule was prepared by him after much consultation with the executive officers as to what embankments were then maintained, and after wading through a mass of papers as to what were the obligations of Government in regard to those embankments, the schedule appended to the Bill was prepared. The hon'ble member said he did not know how the schedule was prepared. He thought he might say how it was prepared and how those particular embankments were entered in the schedule, and other hon'ble members of the Committee would probably confirm his statement. The schedule was prepared and circulated to all the members of the Committee. The Committee would not examine the various items in the schedule (the HON'BLE MR. SCHALCH was prepared fully to explain them), but accepted the schedule with the understanding that it would be discussed in Council. That was the way the schedule was prepared and became a portion of the Bill. With regard to the principle on which it was prepared, he would beg to say a few words. In the speech of His Honor the President he recognized merely those obligations, which were distinctly undertaken by the Government at the time of the decennial settlement. Looking through all the papers connected with the permanent settlement, MR. SCHALCH could find nowhere that the Government had distinctly undertaken to maintain any embankments. In almost every district the zemindars, however, had entered into certain obligations in which they distinctly stated that they would maintain embankments within the boundaries of their estates. The kubooleuts ran in this form—

“I will keep up embankments regularly in my estate according to custom. Should I fail to do so, whatever loss may follow is mine only.”

MR. SCHALCH would not yet go into the question of the liability of the zemindar. The liability was contained in this engagement of the zemindar, and he could find nowhere any engagement made by the Government to maintain embankments. But on looking into some other papers, he found that there were, subsequent to the decennial settlement, engagements by which the Government was bound to maintain certain embankments. For instance, the embankments included within the estates of the Rajah of Burdwan. At the time of the settlement the Rajah of Burdwan received a remission of revenue of Rs. 60,000 for the purpose of maintaining embankments throughout his estates, but by some process or other the embankments were not maintained, although the Rs. 60,000 was remitted for the purpose. But in 1822 the Government did enter into a distinct arrangement with the Rajah that in future, provided he paid that Rs. 60,000 as Government revenue, the Government would maintain the embankments within his estate. MR. SCHALCH considered that a clear and specific engagement; and he therefore introduced into the schedule all the embankments now maintained by the Government in the old Burdwan estates. The Council would find those embankments specified in the schedule in the items numbered from No. 1 to No. 28. That was the only specific engagement to maintain embankments which he found the Government had ever made. There were another set of embankments which was not noticed in the Board's report. That was in regard to the embankments in Hidgelee. They formed

the subject of a careful enquiry by Sir Henry Ricketts when a member of the Board of Revenue. He reported that these embankments consisted of seven different kinds of embankments which he specified.

The matter was carefully considered by the Government, and they finally accepted the obligation of maintaining the sea bund mentioned in the schedule as No. 36, extending over a length of 41 miles. They further accepted the obligation of maintaining the outer embankment along the river Hooghly and up to the creek to a certain distance. And they accepted the duty of cutting and keeping open these bunds at the breaches of those embankments. But the expense of maintaining all other embankments in Hidgelce was to be borne by the zemindars. From that date the only embankments borne on the books of the Government and maintained by Government were those that they then undertook to maintain, and they have been included in Nos. 39 to 54, both inclusive. There remained only three other lines of embankment. Two of these were what was called station embankments, one protecting the station of Rampore Beaulah, and the other Maldah.

HIS HONOR THE PRESIDENT observed that the hon'ble member was rather entering into an explanation of the items in the schedule, which would be better considered at a later stage of the proceedings.

THE HON'BLE MR. SCHALCH resumed.—He would not now proceed with any further explanation of the schedule; but the Council would see from what he had already said, that the schedule was framed in entire accordance with the opinion expressed by the Board of Revenue in their letter, where they said they considered that embankments needed for the protection of cities should be maintained by Government, and the three classes of embankments which he had mentioned were the only embankments which were entered in the schedule, because they were the only ones which the Government, in accordance with that opinion, was obliged to maintain.

The hon'ble mover of the amendment had observed that this subject was fully considered in the Board's letter of 1837, and that the determination then arrived at should not be set aside except by a judicial decision. But if the hon'ble member referred to the Board's letter, he would find that it did not support him so far as he would wish. In the first place, one of the very important embankments then maintained was the embankment which protected the 24-Pergunnahs. The circumstances relating to that embankment were very complicated, and MR. SCHALCH would therefore prefer not to discuss them until the Council came to consider the schedule. He would merely observe that the final result to which the Board arrived was set out in the 51st paragraph of the Board's letter, which showed that the Government was so far obliged to maintain those embankments, that if they did not keep them up they should be obliged to refund the sum of Rs. 16,786 which the zemindars originally paid to Government when they gave up the maintenance of those embankments. Then he might also observe that the hon'ble member had stated that the Moorsheadabad embankments had been omitted from the schedule. Those embankments had been omitted because the Government was not bound to maintain them; and so far as the decision of the Board of Revenue would show, it was stated by the Commissioner of Moorsheadabad that "he had been unable to discover any document binding the State to this expenditure with regard to bunds in states the property of zemindars."

But Mr. Schalch would not further go into the question of the schedule at present.

MR. SCHALCH thought he had now answered the question, which the hon'ble member suggested, why certain embankments had been included in the schedule and why certain other embankments had been left out. The reason was that in the one case the Government was bound to maintain them, and in the other they were not so bound.

With these preliminary remarks he came to the two serious objections which he had to the amendment before the Council—first, that it would throw upon the Government the charge of keeping up embankments without any

determination as to how that charge was undertaken. He found after a very careful review that the embankments which the Government was now maintaining might be divided into three classes—first, embankments which the Government had undertaken to maintain, and which were entered in the schedule; secondly, those which the zemindar was bound to maintain, and which from their importance were of such a nature that their non-maintenance would entail very serious loss to the people; and, lastly, those which the zemindar was also bound to maintain, and which on occasions of emergency the Government had taken up; and once having taken them in hand they found it difficult to get rid of them, because their abandonment might be injurious to the people. He would mention one instance of the latter class in Nuddea. In consequence of the heavy inundation in 1867 much loss was caused. The Collector found that the embankments had not been repaired, and he suggested that an enquiry should be instituted: he fully allowed that the zemindars were bound to repair the embankments, but as the zemindars would not maintain them he suggested that the Government should repair them. The executive officer found that small bunds had been thrown up by the zemindars to protect their lands, but he insisted that it was necessary in the interests of the people to repair the embankments. The Government then undertook to repair the embankments, but with this distinct reservation, that they had acted merely on an emergency, and that their action should not be construed into a precedent or be held to throw any new claim upon the Government. MR. SCHALCH thought it would be very unfair to the tax-payers generally that the Government should be bound to do a duty which the zemindars were under obligations to perform: it would be unfair to the public to ask the Government to accept the whole of the costs of those embankments which they were not under obligations to maintain.

The second objection to the amendment was, that it would leave the responsibility of the Government under the Act in the same undecided state in which it was now, and which it was one of the objects of the Bill to remove. One of the objects of the Bill was that from the date of the passing of the Act each person would know what embankments he had to maintain; whether it should be determined that the zemindar or the Government should maintain a particular embankment, it should be distinctly laid down upon whom the responsibility lay. And that was done by reference to the schedule. MR. SCHALCH therefore objected to the omission of the schedule in that sweeping manner by which the hon'ble member proposed to throw on the Government the liability to maintain embankments. If the amendment was not accepted by the Council, and if the provision declaring the necessity of the schedule was maintained, he should be most happy, in discussing the details of the schedule, to state the reasons for its adoption in its present form, and it would then be in the power of the Council to determine what embankments should, and what embankments should not, be entered in the schedule.

THE HON'BLE MR. COLVIN said that he had not intended to take part in any debate upon the clauses of the measure now under consideration, for the Bill was originally introduced before he had the honor of being a member of the Council, and had been subjected from time to time during its progress, before it assumed its present form, to various important changes and modifications, with the history and character of which he had hitherto been scarcely as familiar as he could wish. But the discussion on the amendment of the hon'ble member on his left with regard to section 41 had made him desirous of offering a few words upon the general principle which appeared to him to be involved therein, and of stating his reasons for wishing to support the section as it stood, though he did not purpose to enter into the details of the points at issue.

The hon'ble member (Baboo Degumber Mitter) had urged with considerable force that it was the duty of Government, in view of the terms of the permanent settlement, to continue to maintain at the public charge, all those embankments which had hitherto been, or were now being, kept up at the expense of the State; that the obligations of Government in that respect were of a lasting and binding character; and that, consequently, the embankments which were

enumerated in Schedule (E) annexed to the Bill, formed but an incomplete and inadequate list of those in respect to which responsibility attached to the State.

On the other hand, the Government argued that their present obligations, or what in practice had come to be considered as such, in respect to the maintenance of embankments, had grown and increased from time to time, under special needs and demands, to their present extent, and that they considerably exceeded the limits at which it was intended to fix them on the occasion when they were last settled, and that now it was high time to draw the line somewhere. This view appeared to receive much support from the official records of recent years which had been brought to bear on the case.

But be that as it may, it would, he thought, be admitted on allhands that both the hon'ble members who had charge of the Bill and the Select Committees to whom it had been more than once referred, had given every consideration to the representations which had been made to them during the progress of the measure, and in consequence of which several of the changes, to which he had already alluded, from its original provisions had been adopted, and that in doing so they had gone far towards meeting the views urged in those representations, and had endeavoured as fairly and equitably as possible to assess the respective obligations of the Government and zemindars; he would therefore be very unwilling, for his part, lightly to disturb the conclusions which had been arrived at after so much deliberation. At any rate, it seemed essential that such obligations should be defined in the form of a schedule, though it might be a point for decision, when the schedule itself came up for discussion, whether any other embankments should be added to the list. He would venture to remind the Council that all legislation upon questions such as this, in which the issues involve the adjustment of charges between different parties, must necessarily partake in a greater or less degree of the principle of compromise, and he would prefer to accept the concessions which had already been made by Government in the direction of the special claims so ably represented by the hon'ble member on his left, in order to facilitate a permanent, or at any rate, it might be hoped, not less than a decennial, settlement of a long and much-vexed question upon a fairly if not wholly satisfactory basis.

Upon these grounds he wished to support the clause as it stood.

THE HON'BLE MR. WYMAN said, he thought the amendment went much further than the mover of it himself considered it really did, as he said that His Honor the President had not only pledged himself to maintain intact the obligations of the Government in respect to embankments, but to maintain all the existing embankments. What His Honor really did was not to pledge the Government to maintain the embankments which they were now maintaining, but that where it was shown that the Government was under obligations to maintain certain embankments, that obligation should be respected and maintained. But the amendment of the hon'ble member went much further than that. He started by asserting, practically, that every embankment now maintained by Government should be maintained for ever at the expense of Government. That was not what His Honor had promised, nor what the hon'ble member in charge of the Bill referred to in his introductory observations. He distinctly pointed out that there were certain liabilities which required adjustment. From the circumstance that the zemindars avoided their obligations, the Government had been led to take them up in the interests of the people; and because the Government had done that in view of the great and important public interests which were concerned, the hon'ble member said it should be declared that the Government should be held liable for the continued maintenance of those works. Neither His Honor the President nor the hon'ble mover of the Bill had departed from what was proposed to be done. The argument therefore really turned upon the question whether the schedule attached to the Bill did or did not contain the embankments which the Government were bound to keep up. If there was any obligation to keep up any embankment which was not entered in the schedule, Mr. WYMAN had no doubt that the matter would be carefully considered;

but there manifestly must be an advantage in having a schedule containing a specific enumeration of all the embankments the Government were bound to maintain. It set the question at rest, and it showed the zemindar also what his obligations were. In page 10 of the Report of Proceedings of the last meeting, where an extract was made from the Board of Revenue's letter of 1837, great stress was laid by the hon'ble member on the ability of the zemindar to ignore his obligations. The words used were—"should I fail to maintain embankments, the loss will be mine only." MR. WYMAN submitted that the matter did not end there. It might involve loss to hundreds of persons, it might cause inundation to the country, and affect places far beyond the immediate locality of the embankment. And therefore the Government had thought it right to say to the zemindars—"Here is a public duty which you have not performed: we cannot saddle ourselves with the cost. We do the work to prevent a calamity; but you must pay for it." He thought that was fair and reasonable. The Government accepted their liability to maintain certain embankments, and made a compromise by saying—"We will accept this much, but we will not accept more. It is necessary that this thing should be done: we have done our part; and now you do yours." MR. WYMAN submitted that the arguments of the hon'ble member were hardly so convincing as he thought they were. It would never do to compel the Government to maintain what under peculiar circumstances they had done for the benefit of the people, but the obligation to do which really lay with the zemindar.

THE HON'BLE THE ACTING ADVOCATE-GENERAL said, it might perhaps be necessary for him to say a few words. The hon'ble member in charge of the Bill had sufficiently and properly shown to the Council that the Government was in no way disposed to avoid any responsibility or obligation undertaken by the Government under the terms of any contract. He thought that the hon'ble mover of the amendment had not ventured to suggest that the Government had avoided any obligation. But he had taken advantage of the circumstance that in consequence of neglect of duty on the part of zemindars, the Government had in fact, for some considerable time, kept up certain embankments, which they were under no obligation to keep up, for the protection of the inhabitants of particular districts, and he (the hon'ble mover) had founded the liability of Government to keep up all existing embankments upon the circumstance to which reference has been made. THE ADVOCATE-GENERAL thought the object of the Bill was to adjust the liability, in respect of maintaining embankments, between the zemindars and the Government. It appeared to him that the embankments which the Government had kept up, other than those which they were bound to maintain, were embankments which they might (if necessary) compel zemindars to maintain through the medium of Courts of Justice, by suits instituted to enforce the terms of the engagements entered into by zemindars. The present legislation embodied a simple means of obtaining redress in respect of grievances which the Government had for a considerable number of years borne at the hands of zemindars. The argument of the hon'ble member had taken the Advocate-General by surprise; for it amounted to this, that whenever a person, actuated by generous sentiments, voluntarily benefited others by certain specific acts, it should be held that he had undertaken the duty or incurred the liability to continue in future to perform similar acts for a similar purpose, and to release parties actually liable and bound to perform them. The whole argument of the hon'ble member seemed to be based upon the above suggested principle, and therefore carried with it no weight. THE ADVOCATE-GENERAL must give his vote in favor of this part of the Bill, and support the mover in this measure.

THE HON'BLE BABOO DEGUMBER MITTER said,—“I do not think that I am called upon to notice all the objections that have been raised against the amendment I have moved. The question principally raised by the amendment is, whether the schedule annexed to the Bill, purporting to contain a specification of all the embankments which should be maintained at the cost of the State, should be accepted by this Council and made the basis of legislation on the subject. I have shown by figures that cannot lie, that the mileage of embankment which is now being maintained at the cost of the State is 1,320, whereas

it should have only to maintain 864 miles if the Bill passed into law with the schedule preserved in all its integrity. The inference which that fact unavoidably leads one to is, that many embankments must have been excluded from the schedule which are at present maintained at the expense of the State. Some hon'ble members would meet this objection by restoring to the schedule such lines of embankment as might have been unjustly excluded from it. The question would still obtrude itself, whether this Council is competent to enter into this sort of judicial enquiry, especially in the absence of the parties who are interested in the matter, and who can alone offer information or adduce evidence on the subject."

HIS HONOR THE PRESIDENT said, he was inclined to think that the arguments which had been adduced against the amendment had induced the hon'ble mover of the amendment to recede from the position which he had taken up. He admitted that his arguments were opposed not to the general principle of the Bill which his amendment seemed to maintain, but to the particular schedule before the Council. He had occasion to point out that hon'ble members were somewhat premature in considering the details of the schedule. The time would come when the details would be properly and thoroughly discussed. It was evident that the schedule would have to be very carefully considered. Looking to the statement regarding that schedule which was given by the hon'ble member in charge of the Bill, looking to the circumstances under which the schedule was appended to the report of the Committee, it would probably be desirable that we should ask that Committee to be good enough to resume their labors so far as to re-consider the schedule. HIS HONOR thought that the schedule having been attached to the Bill subject to future consideration, it might perhaps be referred back to the Committee to consider it a little more fully. Perhaps if he said more he should be attempting to slay the slain, for the hon'ble member's arguments had been sufficiently slain. But perhaps he might say that he heartily and entirely objected to the principle of the amendment, as it placed on the Government an obligation which did now lie on the Government; and he was extremely unwilling that the Government, representing not the Government as an entity, but the tax-payers of the country, should, in a matter of this kind affecting the permanently-settled estates of Bengal, for one moment think of consenting to assume obligations not legitimately falling upon them. The permanent settlement had conferred enormous benefit and revenues on the zemindars of Bengal. Those revenues were subject to certain obligations, and he most strongly held as proper and right to the tax-payers that we should hold the zemindars to the obligations which they undertook at the time of the permanent settlement, from which they derived such great benefit and revenues. Therefore, adhering as he did to the declaration that nothing was further from his intention than to recede from the obligations incurred by the Government at the time of the permanent settlement, he at the same time strongly objected to throw on the Government any additional obligation as between the Government and the zemindar, which the Government did not undertake at the time of the permanent settlement, and which neither equity nor the law of the case throw upon the Government. HIS HONOR must in that view oppose the amendment. The hon'ble member had alluded to the Board's report of 1837. But the year 1837 was not the present time, it was also not the time of the permanent settlement. The papers of 1837 might justly and properly be referred to the Select Committee as throwing light upon the obligations of the Government at the time of the permanent settlement. He desired that the matter should be sifted in that way. But the question now for consideration was, were the embankments, or were they not, an obligation at the time of the permanent settlement, or an obligation which the Government at any time permanently undertook as between it and the zemindars. That being so, he submitted that the amendment which proposed to put the question on an entirely different footing should not be accepted.

The motion was then negatived.

On the motion of the Hon'ble Baboo Degumber Mitter, section 73 was omitted from the Bill.

The further consideration of the Bill was postponed.

The Council was adjourned to Saturday, the 22nd instant.

DEATH OF SURGEON J. A. PUREFOY COLLES.

No. 805, dated Calcutta, the 25th February 1873.

From—A. MACKENZIE, Esq., Offg. Secy. to the Govt. of Bengal, Judicial Dept.

To—The Inspector-General of Hospitals, Indian Medical Department.

I AM directed to acknowledge the receipt of your letter No. 1316 of the 20th February 1873, with enclosure, and in reply to say that the Lieutenant-Governor has noticed with very deep regret the death of Surgeon J. A. Purefoy Colles, M.D., Officiating Professor of Anatomy and ex-officio Second Surgeon of the Calcutta Medical College Hospital. The services of Dr. Colles were much appreciated by this Government, and His Honor fully concurs in the testimony borne by you to his worth and abilities.

No. 1316, dated Fort William, the 20th February 1873.

From—DR. CAMPBELL BROWN, Inspr.-Genl. of Hospitals, Indian Medical Dept.

To—The Offg. Secy. to the Government of Bengal, Judicial Department.

IN forwarding the accompanying official report of the death of Surgeon J. A. Purefoy Colles, M.D., Officiating Professor of Anatomy in the Medical College, and Second Surgeon to the College Hospital, I have the honor to state that I entirely concur in the observations recorded by Drs. Saunders and Smith regarding the late Dr. ^{sa.} the's character and merit. I first became acquainted with Surgeon Colles in the Field Hospital at Lucknow in 1858, and I then formed a very high opinion of him, which his after career has very fully confirmed. Government has lost the services of a most zealous and talented Medical Officer, and of a most conscientious and unselfish man. It is pleasant to observe that his loss is not only deplored by his colleagues, who knew and valued him as an earnest fellow-worker; but that the students also manifest such a very proper feeling regarding the death of one who laboured so zealously to instruct them.

No. 733, dated Calcutta, the 11th February 1873.

From—DR. DAVID B. SMITH, Officiating Principal, Medical College.

To—DR. G. SAUNDERS, Deputy Inspr.-Genl. of Hospitals, Presidency Circle.

IT is with feelings of deep sorrow that I have heard of the death of Dr. J. Purefoy Colles, Officiating Professor of Descriptive and Surgical Anatomy, which sad event occurred at Dinapore on the 8th instant, at 4 P.M.

2. The Government has no doubt already received the sad intelligence; but it seems but right that I should place it on official record.

3. Dr. Colles's untimely death has cast a gloom over this College; Professors, native teachers, and students of all classes being deeply grieved at the loss of one whose sense of duty was firm and unflinching, and who succumbed earnestly striving to do faithful service to the College, and to his fellow men.

4. Already the students of this school have, as one man, testified to me their heartfelt grief at his loss, and I have no doubt that within a short time all connected with the College will take steps to perpetuate his memory by the erection of some suitable monumental tablet or the like.

No. 23E, dated Fort William, the 12th February 1873.

Memo. from—DR. G. SAUNDERS, Dy. Insp.-Genl. of Hospitals, Presidency Circle.

To—The Secy. to Insp.-Genl. of Hospitals, Indian Medical Department.

FORWARDED for the information of the Inspector-General of Hospitals. I beg to express my entire concurrence in all that the Principal of the College has said regarding the late Dr. Colles's sterling worth and ability.

No one who had become acquainted with him but must have been impressed by the earnest manner in which he devoted himself to professional pursuits, and by his strong sense of duty, his kindly generous nature, and his keen appreciation of all the requirements of his position as a Medical Officer. It was with very great regret that I heard of his premature death.

REPORT OF THE STATE OF THE SALT MARKET FOR THE THIRD QUARTER OF 1872-73.

No. 62C, Fort William, the 11th February 1873.

From—T. B. LANE, Esq., Secretary to the Board of Revenue, L. P.,
To—The Offg. Secretary to the Government of Bengal, Revenue Department.

I AM directed by the Member in charge to submit the following report on the state of the salt market for the third quarter of 1872-73, comprising the months of October, November, and December last.

A. MONEY, Esq., C.B.

2. The quantity of salt consumed (*i.e.*, the quantity of total clearances of salt of all descriptions) in the quarter under report amounted to 1,849,846 maunds, against 2,601,085 maunds in the previous quarter, and 1,996,900 maunds in the corresponding quarter of the previous year; and the total amount of duty levied was Rs. 60,12,000, against Rs. 81,53,526 and Rs. 64,89,925 in the previous and corresponding quarters respectively.

3. There were no sales of Government salt at the Presidency under wholesale rowannahs during the quarter under report, but a portion of the 3,400 maunds of Hidgellee, Ramnuggur salt sold in July last, was cleared during the present quarter.

4. There were no sales of Government salt at Pooree during the present and previous quarters of the year 1872-73. The sales in the corresponding quarter of the year 1871-72 amounted to 1,520 maunds.

5. The quantity of excise salt sold in Cuttack, Balasore, Pooree, and the 24-Pergunnahs during the present quarter, from the stock of the different seasons, is shown in the following table I:—

I.

	CUTTACK.			BALASORE.				POOREE.			24-PERGUNNAHS.		
	Manufactures of			Manufactures of				Manufactures of			Manufactures of		
	1869-70.	1870-71.	1871-72.	1868-69.	1869-70.	1870-71.	1871-72.	1869-70.	1870-71.	1871-72.	1870-71.	1871-72.	1872-73.
	Mds.	Mds. S.	Mds. S.	Mds. S.	Mds. S.	Mds. S.	Mds. S. C.	Mds. S.	Mds. S.	Mds.	Mds.	Mds.	Mds. S.
Balance at close of last quarter ...	20,359*	37,930 20	24,557 10	.....	20,780 1	41,671 13	111,548 30 0	16,212 3	3,023 5	103,563	.....	20,289	.....
Manufactured during the quarter ...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	113 30
Total ..	20,359	37,930 20	24,557 10	.....	20,780 1	41,671 13	111,548 30 0	16,212 3	3,023 5	103,563	.....	20,289	113 30
DEDUCT—													
Sales during the quarter ...	145	1,810 0	.....	.....	4,013 20	7,651 39	26,903 0 0	1,775 0	2,000 0	51,094	.....	6,000	.....
Wastage ...	.....	.....	.....	.....	.....	.....	5,211 3	.....	.....	.....	.....	.....	.....
Total ..	145	1,810 0	.....	.....	4,013 20	7,691 30	26,785 11	1,775 0	2,000 0	51,084	.....	6,000	.....
Balance at close of the quarter ...	20,214*	36,120 20	24,557 10	.....	16,767 21	34,009 23	84,763 18 73	14,437 3	1,023 5	1,42,499	.....	14,289	113 30

* 111 includes 451 maunds in Futteemookah Golah.

It will be observed from the above that the total clearances, or sales, of excise salt during the quarter under review amounted to 1,00,692 maunds, against 1,01,438 maunds in the previous quarter, and 67,352 in the corresponding quarter of the previous year.

6. The subjoined Table II shows, comparatively, the total importation into the port of Calcutta, and the total clearances of sea-imported salt

during the quarter under notice, and the corresponding quarters of the two previous years:—

II.

DESCRIPTION OF SALT.	3RD QUARTER OF 1870-71.		3RD QUARTER OF 1871-72.		3RD QUARTER OF 1872-73.	
	Imported.	Cleared.	Imported.	Cleared.	Imported.	Cleared.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Liverpool Pungah ...	15,87,319	13,20,022	17,01,298	15,21,189	14,02,485	12,07,658
Foreign Kurkutch ...	4,14,738	3,09,477	3,00,569	2,42,671	4,68,102	2,71,422
Indian ditto ...	2,17,140	1,97,098	2,768	1,02,057	1,81,128	1,54,571
Ceylon ditto ...	.....	28,528	... ..	4,116	.....	.....
Total ...	21,99,197	18,53,123	20,16,635	18,70,033	20,51,715	16,93,651

7. The following are the details of the Indian Kurkutch salt shown above:—

III.

FROM WHENCE IMPORTED.	3RD QUARTER OF 1870-71.		3RD QUARTER OF 1871-72.		3RD QUARTER OF 1872-73.	
	Imported.	Cleared.	Imported.	Cleared.	Imported.	Cleared.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
Kurrachee ... ..	.....	1,749	.....	4,650	.....	.....
Bombay	1,55,100	1,33,806	2,768	35,453	92,728	1,02,891
Madras	40,200	59,593	.....	61,954	40,000	51,680
Ennore ... ..	.....	1,950	.....	.....	.....	.....
Covelong ... ..	.....	.....	.....	.....	48,400	.....
Tuticorin	21,840	.....	.....	.....	.....	.....
Total ...	2,17,140	1,97,098	2,768	1,02,057	1,81,128	1,54,571

8. Table IV shows the quantity of sea-imported salt remaining in the warehouses at the close of the quarter, as compared with the results of the previous four quarters:—

IV.

WHERE STORED.	3rd quarter of 1871-72.	4th quarter of 1871-72.	1st quarter of 1872-73.	2nd quarter of 1872-73.	3rd quarter of 1872-73.
	Mds.	Mds.	Mds.	Mds.	Mds.
Sulkea Government golahs	20,32,912	21,08,612	19,30,502	11,76,239	16,70,117
Ditto private golahs ... ..	.....	.....	.....	.....	5,603
Ghoosery golahs	93,574	93,574	93,574	19,082	.....
Seelpore golahs	4,318	3,818	.....	.....	1,51,295
Chittagong Government golahs	1,30,188	1,06,335	1,06,479	1,09,007	.....
Total ...	22,61,292	23,72,279	21,36,555	13,03,988	18,27,015

9. Table V exhibits the despatches of salt from Calcutta by water and the three railways, *via* the several salt pass stations into the interior of the country, both east and west of the river Hooghly, during the quarter under review, and the corresponding quarters of the two preceding years.

V.

PERIOD.	<i>Via</i> Ballikhal.	<i>Via</i> Sankrail.	<i>Via</i> Gewa-khalee.	<i>Via</i> Kidder-pore.	<i>Via</i> Bullia-ghatta.	By the East Indian Railway.	By the East-ern Bengal Railway.	By the Cal-cutta and S. E. Railway.
	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.	Mds.
3rd quarter of 1870-71 ...	4,02,903	1,14,998	93,948	91,177	8,70,494	2,81,834	5,547	22
Ditto 1871-72 ...	5,82,327	1,34,109	1,03,055	1,05,580	6,79,318	3,42,243	2,283	10
Ditto 1872-73 ...	4,80,760	1,18,159	68,287	77,763	6,87,592	3,63,556	1,648	2,200

The quantity of salt despatched by the East Indian Railway to stations beyond Buxar in the quarter under review amounted to 12,367 maunds, as noted on the margin, against 8,111 maunds in the previous quarter, and 16,077 maunds in the corresponding quarter of the year 1871-72.

	Mds.
October ...	3,048
November ...	4,860
December ...	4,461
Total ...	12,367

10. The shipments of Liverpool salt for the port of Calcutta, according to published market reports, were as follow:—

	Mds.
October ...	10,193
November ...	13,718
December ...	28,640
Total ...	52,551

No shipments to Chittagong were made during the quarter under report.

11. The market prices, per 100 maunds of Liverpool, and other descriptions of salt at the close of each fortnight during the quarter, as compared with those obtaining during the same period last year, are shown in the following table:—

VI.

DESCRIPTION OF SALT.	Prices on 15th October.		Prices on 31st October.		Prices on 15th November.		Prices on 30th November.		Prices on 15th December.		Prices on 31st December.	
	1871.	1872.	1871.	1872.	1871.	1872.	1871.	1872.	1871.	1872.	1871.	1872.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Liverpool Pungah ...	52	75	50	63	47	70	46	69	42	63	40	64
French Kurkutch ...	51	62	53	58	52	61	56	57	60	55	60	
Jeddah ditto ...	64	67	64	69	67	71	67	74	67	75	69	76
Ceylon ditto ...	54	...	54	...	54	...	54	...	54	...	54	...
Scinde ditto ...	38	...	38	...	38	...	38	...	38	...	38	...
Bombay ditto ...	54	46	55	44	60	51	60	54	60	58	60	59
Madras ditto ...	51	52	52	54	56	54	56	55	56	55	56	60

12. In Table VII are exhibited the total quantities of salt that were available for the private export trade at the several depôts in the Madras Presidency on the 1st day of each of the three months constituting the quarter under report and the corresponding quarters of 1870-71 and 1871-72:—

VII.

Months.	1870-71.	1871-72.	1872-73.
	Mds.	Mds.	Mds.
October ...	6,76,250	7,45,508	6,16,340
November ...	6,53,962	6,88,088	5,66,340
December ...	6,53,962	6,36,188	5,66,340

13. The following table shows the quantities of sea-imported salt admitted into bond and cleared from bond and shipboard at Chittagong during the quarter under review and the corresponding quarter of 1871-72 respectively:—

VIII.

DESCRIPTION OF SALT.	ADMITTED TO BOND.		CLEARED.	
	3rd quarter of 1871-72.	3rd quarter of 1872-73.	3rd quarter of 1871-72.	3rd quarter of 1872-73.
	Mds.	Mds.	Mds.	Mds.
Liverpool Pungah ...	1,00,085	95,015	50,906	55,508
Madras Kurkutch ...	.....	.....	2,206	.....
Bremen Pungah ...	.....	.....	3,908	.....
Total ...	1,00,085	95,015	57,020	55,508

No transactions in sea-imported salt have been reported during the quarter from any of the ports in the Orissa division.

ANNUAL REPORT ON ASSAM FRONTIER TRIBES.

No. 477, T, dated on board the Steamer *Jaboona*, the 22nd January 1873.

From—COLONEL HENRY HOPKINSON, Governor-General's Agent, North-East Frontier, and Commissioner of Assam.

To—The Offg. Secretary to the Government of Bengal, Political Department.

As required by paragraph 7 of your letter No. 185, dated 17th January 1871, I have the honor to forward the following annual report of our relations with the frontier tribes in Assam not actually under our immediate management.

2. *Kamroop*.—The Deputy Commissioner, Major Lamb, reports "that the frontier tribes have been peaceful during the past year as far as this district is concerned."

3. *Durrunt*.—Captain M. O. Boyd, Officiating Deputy Commissioner.

"My predecessor's report submitted in February 1872 mentioned the attendance of a considerable number of Thibetan Bhúteas at the annual fair at Udulgooree in the previous month, and stated that our relations with these people were most friendly. Shortly after the submission of his annual report, Major Graham met the Thibetan Chiefs, known as the Sath Rajahs, at Udulgooree: in the course of conversation these Rajahs asserted a claim to the grazing lands lying between the hills and a path running through Chardoocar called Boyragee Patgiri's road, and to the right of collecting revenue for forest produce taken from the spurs of the lower hills. It was pointed out to them that their claim was perfectly untenable, and that their practice, commenced only about three years ago, of levying revenue on the workers of the rubber mehal (a large part of which lies in the tract of land these Rajahs claimed), could not be countenanced for a moment. The Rajahs signified their intention of continuing to collect revenue from the workers of these forests, but promised that the collection should be made by two Kachari agents, and not by their own followers. This meeting may then be said to have been barren of good results, except in so far as it cleared up any doubts that may have previously existed as to the pretensions of these Rajahs. The matter was duly reported.* During last cold season an objection to the survey of the land lying to the north of Boyragee Patgiri's road was made by a Bhútea Rajah

* To Government, No. 54, dated 24th February 1872.

To Government, No. 77, dated 15th March 1872.

From Government, No. 1302, dated 28th March 1872.

of the name of Fesoo: the officer in charge of the survey party, however, proceeded to do his duty, and was not interfered with by the Bhúteas.

"A claim similar to that of the Sath Rajahs was put forward on behalf of the Tongso Penlow by Fispa, a petty chief residing at Marsala on our immediate frontier, the place where the Bernuddy enters the plains: Fispa was met in January last by Major Graham and myself, when he informed us that his orders were to collect tax from the boat-cutters who carry on their work at the foot of the hills; and added that his superiors claimed the right of levying tax on all persons working the lands north of our rice cultivation. During the past year a party of refugee Bhúteas, who settled in the Mungledye subdivision, and who had commenced the cultivation of lands at the foot of the hills, were informed by me that they could not be permitted to reside on the immediate frontier, but should receive lands at a safe distance from the boundary. They declined to accede to these terms, and returned to their own country. With the exception of some petty exactions from Assamese working the forests at the foot of the hills, the Bhúteas have during the past year been perfectly quiet.

"In February 1872 an application was made by the Akas to my predecessor for 82 poods of land for religious purposes. Major Graham informed them that their demand was one which he could not think of supporting, and strongly counselled them to abstain from their practice of extorting provisions and coolies from our own people, which they defended on the ground that it was 'an old custom.' This tribe has, however, given no trouble during the year, only one case having been reported against an Aka. The orders prohibiting our people from going up to the hills for the purpose of trade in rubber, and the discontinuance of farming the rubber mehal, have doubtlessly deprived the Akas of many opportunities of making petty exactions.

"The Duffla Grams (or Chiefs) came in as usual for their posa in March and April; our relations with these tribes during the past year have

been very satisfactory; there has been an entire absence of everything of the nature of a raid. The refugee Dufflas have not been interfered with in any way by their independent brethren, and have themselves kept out of mischief. The District Superintendent of Police has lately paid a visit to the Duffla hills, and obtained some specimens of what is believed to be coal; he met the two principal Chiefs of the Komarmura Dufflas, who accompanied him back to the plains. The demeanour of the Dufflas was extremely friendly, and I think the visit will be productive of good results.

“Our relations with the frontier tribes may on the whole be considered satisfactory. The Bhúteas, it is true, put forward preposterous claims, but I think they are indisposed to go any length in support of them; while as regards the Akas and Dufflas, it would not be possible for a year to have passed more quietly than has 1872.”

4. *Nowgong*.—Major Sherer, Deputy Commissioner.

“The only hill tribes with which we are brought in contact in this district are the Nagas and the Meekirs.

“The former are within the jurisdiction of the Deputy Commissioner, Naga Hills, and have up to date been peaceful neighbours. The latter are a hardworking, inoffensive set of people, and have given me no cause whatever for anxiety.”

5. *Sebsaugor*.—Major A. E. Campbell, Deputy Commissioner.

“The blockade of the Lotah Naga Douars, which took place during the year, was withdrawn in accordance with the orders contained in Government letter No. 2092, dated 28th March 1872, but the Sonaregam Nagas have not come down to have the orders of Government explained; in fact, they refused to do so when sent for by the Assistant Commissioner of Golaghat.

“The Assistant Commissioner reports that as soon as the blockade was withdrawn, there was a general rush of Assamese into the hills, and the Nagas got all they wanted without the necessity of leaving their own villages.

“The other tribes of Nagas along the border have been very quiet during the past year. There has been only one complaint made to me by an Assamese against the Namsang Nagas of the Gelekee Doar, who at night came down and stole a bullock.

“This chang is one of the nearest to the plains, and the Nagas of it come and go all the year round.

“The owner of the bullock followed the track of the thieves right up to the chang, found his bullock tied to a tree, and was bringing it away when three or four Nagas came up and slaughtered the animal on the spot.

“The man came to me, and I sent for the headmen of the chang, and told them they must settle the case with the complainant.

“They held a punchayet then and there, and settled it for Rs. 20, which they have since paid to the complainant.

“Within the last few days an Assamese from Obhoypore has complained against the Banfera Nagas that about 40 of them went to his house and took away a buffalo, some ducks, and a cloth, because he, the Assamese, refused to go to the chang when sent for by the Rajah. I have sent a kotokee to call the Banfera Rajah down.

“During the past year the Nagas have carried on a thriving trade in rubber, which they bring down and sell and barter with the Assamese. Such a demand exists for this article that the Assamese go in large numbers to the hills; this has lately been put a stop to by recent orders, but it is impossible to prevent them going to the hills, as the paths through the jungle are innumerable. As long as a good trade exists between the people of the plains and hills, I think our relations with the tribes will not be other than satisfactory; at the same time it would be very desirable if our southern boundary was properly defined and the Nagas made to understand it.”

6. *Lukhimpore*.—Major W. C. S. Clarke, Deputy Commissioner.

Nagas.

“Beginning with the Nagas bordering on Jaipore and the country beyond and south of the Booree Dehing, nothing has occurred to mark the year in any way. The Namsangia and Bordoaria tribes are still at feud, but they have not preferred any questions for settlement to me; their relations generally with us are friendly and quite satisfactory. In the present month I am about to take

an opportunity of visiting some of the tribes and making my way from Jaipore by the hills to opposite Makoom. Personal contact and knowledge of their localities and their condition will give me more to write about the Nagas."

Doanneahs and Phakials.

"These two tribes inhabit the border of the plains from the Brahmapootra south to the Boorce Dehing. They are half Assamese and half Kampti or Singpho. They for the most part reside where the land assessment reaches them, and may be considered ordinary ryots."

Singphos.

"Of the Singphos I have seen more during the year. I saw several of the leading Gams or Chiefs last January at the *mela* at Saddya, and in this last November I had an opportunity of seeing them at home in their own settlements on and beyond the Noa Dehing and the Tengapani. They are thrifty and well-to-do, live, in not very large numbers, in well constructed clean villages, and their communities appear well ordered and very obedient to their Gams. I met with the best possible reception from all those I visited, and indeed many came in from distances to meet me and pay their respects. I think the popular feeling among the Singphos is as good as could be wished, but they certainly have no reason to be otherwise than perfectly contented; a grand country, producing everything they want without a single cess or tax or call on them of any kind; it would be hard indeed if they were not contented and happy."

Kampties.

"With the Kampties I had also some opportunity of communication at the Saddya *mela*, and again in this last November, while on the frontier, I visited several of their settlements on the Tengapani and Noa Dehing. The Kampties and Singphos live, apparently, on most amicable terms. The Kampties, owing to their written language, which is, for purposes of education and religion, adopted by the Singphos, who possess no written character, may perhaps be held superior of the two tribes; the Singphos have no priesthood, and using the religion of the Kampties. Kamptic priests occupy their temples and receive the offerings of the ceremonies, as well as educate the lads of the village who desire to learn. In time young Singphos will doubtless enter the priesthood. The Kampties are a very nice tribe, and are most excellent cultivators. I saw finer rice crops in the cleared and irrigated high forest land of the Kampties than I have seen anywhere in the plains. As with the Singphos, our relations with the Kampties are as good as they possibly can be. They too are at present beyond the reach of taxes or imposts of any kind. Those Kampties who reside within the regularly assessed mouzahs of course pay the tax upon land."

Mishmees.

"Except at the *mela* last year, I have as yet seen but little of the Mishmees. Several of the Digaroo, Mijoo, and those of the Chulkatta tribes who were not under ban, came down and partook of the festivities. A deputation from the Chulkattas under ban came down to obtain a treaty with the Government* and permission to enter the plains and trade on condition of good behaviour, and in the coming February I shall meet these last with a view to making terms with them; no raids have disturbed the peace of the frontier in that part, and our relations with the Mishmees is as satisfactory as we could wish. During the cold season they carry on an active trade in Saddya and Debrooghur; are well behaved and make no complaints."

Abors.

"I have as yet seen very little of the Abors. I gave them their 'posa' last year, which they took in their quiet undemonstrative way. Nothing has disturbed the peace of the borders from the Dehing to Sessi, or along the whole line of Abor frontier. I hope to see more of the Abors in the coming February."

Hill Meerees and Dufflas.

"One Duffla raid was committed at Borpathor, the whole particulars of which, up to the recent return of two of the three remaining captives and

* To Government, No. 179T, dated 15th May 1872.

From Government, No. 2470, dated 12th June 1872.

To Government, No. 2106, dated 2nd October 1872.

From Government, No. 4733, dated 30th October 1872.

To Government, No. 154, dated 15th November 1872.

the promise to surrender the third shortly, have been duly reported.* The

* To Government, No. G4T, dated 4th January 1873.
To Government, No. G10T, dated 13th January 1873.
To Government, No. G19T, dated 15th January 1873.

raid had no political significance, and the surrender of the captives, together with the furnishing of security for their good behaviour by the clan concerned, if allowed access to the plains, will be all that is necessary to obtain from them. There was no bloodshed, and meanwhile we have one of

the offenders in custody as a hostage for the return of the remaining captives. The Dufflas of North Lukhimpore have not been a turbulent people, and have come down to trade in numbers, and seem to get on well with the Assamese of the plains. There is scarcely any distinguishing between the Hill Meerees and the Dufflas; they are similar in looks, character, and general behaviour."

7. *Commissioner's remarks.*—There is little to add to the above reports of the district officers, as every incident which has occurred during the past year, and which has in any way affected our relations with the tribes on the border, has been specially reported to Government. In Kamroop the boundary between British territory and Bhútan is now in course of settlement by Major Graham, who has been appointed special Boundary Commissioner for the purpose, and it has recently been decided by the Government to establish a post at Dewangiri to represent British possession. Twice during the past year the District Superintendent of Kamroop has visited Dewangiri and the neighbouring villages, and has held communication with Bhútea traders and others from the interior of Bhútan. On the subject of Dewangiri, however, the Government has directed the Boundary Commissioner to obtain full particulars during the course of his tour, and as a special report will be submitted by that officer through me, I need not say more now.

8. In Durrung the encroaching attitude of the Towang Bhúteas and the Hazari Kowa Akas has already been brought to the notice of Government, and the orders of Government received in your letter No. 1302 of the 28th March last. The question of the boundary between Durrung and the Bhútea and Aka hills will shortly also be adjusted by Major Graham. The behaviour of the Dufflas in this district has been perfectly satisfactory. Captain Trotter, the District Superintendent, has recently paid a visit to some of their villages, and met two of the principal chiefs, who returned with him to the plains. The result of this visit has been separately reported by the District Superintendent, and will shortly be submitted to Government.

9. In Nowgong we have only to deal with the Meekirs, and, as Major Sherer observes, they are an inoffensive race, and have given us no cause for anxiety; besides, the Meekirs of Nowgong are all our own subjects, living within the limits of our civil jurisdiction.

10. In Seobsaugor our relations with the Nagas have on the whole been satisfactory, although one or two instances of cattle-lifting have been traced to them. I may here just mention that the American Baptist Missionary Society are endeavouring to form a mission station amongst the Haimong Long Nagas;

No. G3T, dated 4th January 1873.

but this matter has already been submitted to Government in my letter quoted in the margin.

11. In Lukhimpore our relations with the frontier tribes have been very satisfactory, perhaps more so than in the year 1871. The difficulty which arose with the Sangloi Nagas out of the quarrel between some of their tribe and Mr. Eades was satisfactorily settled during the year,—(*vide* Government order No. 1704, dated 13th March 1872). The Chulkatta Mishmees, who have been prohibited since 1867 from visiting the plains, made overtures to the Deputy Commissioner to have the ban removed, and the Lieutenant-Governor has accorded his sanction to their application on certain terms which will be explained to them during the present cold season. The Abors, Singphos, and the other tribes, have been perfectly peaceful, and shown no disposition to give any trouble. The only circumstance calling for any remark in the Lukhimpore district was an act of aggression by a few Dufflas on the borders of the North Lukhimpore sub-division, who came down and carried away five of their brethren from the plains. The police succeeded in capturing one of the aggressors with his prisoner, and a second prisoner was afterwards recovered by his friends, but the rest of the band escaped with their three remaining captives to the hills; two of the prisoners have, however, since been

restored by the Duffla Chiefs in person, and the Deputy Commissioner writes that promises to restore the third have been made, and in the meantime the Duffla, who was captured by the police, is detained in our hands as a hostage.

Vide marginal note in paragraph 6. Full particulars regarding this raid have recently been furnished to Government in my letters noted in the margin.

12. In concluding I would observe that I have received Government letter No. 110, dated 10th January 1873, directing the submission of this report at the close of the financial year; but as I had already obtained all the district reports—and indeed this report was at the time in the hands of the copyist—I have determined on submitting it at once, and trust His Honor will accept it for the calendar year 1872, and the recent instructions will be adhered to for the future. I may add that if anything of interest occurs during the remainder of the Deputy Commissioner's tours, it will be reported separately to Government.

RESOLUTION.

POLITICAL DEPARTMENT.

Calcutta, the 24th February 1873.

READ—

A letter dated the 22nd January 1873, No. $\frac{6}{7}$ from the Commissioner of the Assam Division, submitting his report on our relations with the Assam frontier tribes for the year 1872.

1. The report shows that the year has been, on the whole, free from unpleasant events, and that the relations of Government with the Assam tribes are at present peaceable. This is undoubtedly matter for congratulation.

2. Along the frontier of Kamrup, the boundary with Bhutan Proper is now being demarcated on the ground; and when this is done there will remain no doubt as to the respective rights of the two Governments in the forests and streams of the lower hills.

3. The Towang Bhúteas who are supposed to be in some sense tributary to Lhassa, and who have no connection with Bhutan, have, during the year, put forward claims to lands on the plains to which, under the terms of their agreements, they had clearly no right. They have been informed, with the approval of the Governor-General in Council, that the payment of their annual pension will be strictly contingent on their good faith and adherence to their engagements. Our relations with these Thibetan Bhúteas have, however, hitherto been so amicable that the Lieutenant-Governor has every hope that when the Boundary Commissioners reach that part of the frontier, they will be able to come to a satisfactory settlement of their claims; meeting, as they will do, any reasonable demands in a liberal spirit in the manner already directed.

4. A claim made by the Akas for increased allowances, and for some land, was rejected; but the Lieutenant-Governor would not object to entertain a proposition for giving them a small grant of land to be held on condition of good behaviour. There is, in His Honor's opinion, no better way of securing the fealty of hillmen than this.

5. Further particulars regarding the supposed discovery of coal in the Duffla country are awaited, and details should be furnished of the visit paid by the District Superintendent of Police to these hills. A full account of the character of the hills, and what Captain Trotter saw there, would be very interesting.

6. The Lieutenant-Governor is glad to notice that the complications arising out of the theft of a bullock by the Namsang Nagas of the Geleke Dooar was so speedily settled by the Deputy Commissioner of Sebsaugor.

7. Orders have lately been issued for the definition and settlement of the southern boundary of the Sebsaugor district, and the Lieutenant-Governor agrees with the Deputy Commissioner that it is most desirable no time should be lost in disposing of this matter. The Commissioner's report of how he means to carry it through is awaited.

8. The Lieutenant-Governor hopes that regulations for securing the safe and amicable conduct of the rubber trade to the advantage of both parties, and calculated to promote beneficial intercourse, will soon be issued.

9. The Lieutenant-Governor will await with interest the report of the visit paid by Major Clarke, Deputy Commissioner, Luckimpore, to the tribes on the route from Jaipore to Makoom.

10. Some further details should also be submitted regarding the character of the country of the Singphos which the Deputy Commissioner of Luckimpore describes as "a grand country, producing everything they want," and regarding the country of the Kampties, where the cultivation is pronounced to be so excellent. These civilized and energetic people are a pleasing contrast to the savage tribes living in some of the hills round the valley. The further report promised in regard to the "political frontier establishment" called Bullumteers, who are presumed to be Kampti volunteers, has not yet been furnished as required in the orders (Nos. 5290 and 5599) of the 10th September and 1st October 1872, and it is requested that it may be sent speedily.

11. It is the particular wish of His Honor that friendly relations should, as far as is possible, be cultivated with the Mishmee tribe. They may be said to hold the direct route to China, and if communication overland be in the future established with that country, it must be with the aid of the Mishmees.

12. It is a great satisfaction to the Lieutenant-Governor to hear that the Abors have been so quiet.

13. The Commissioner and his officers deserve the Lieutenant-Governor's thanks for their successful management.

ORDER.—Ordered, that a copy of this resolution be forwarded to the Commissioner of the Assam Division for information and guidance, and that the report and resolution be published in the *Calcutta Gazette*.

GOVERNMENT OFFICERS SUMMONED TO GIVE EVIDENCE IN CIVIL SUITS.

RESOLUTION.

JUDICIAL DEPARTMENT.

JUDICIAL.

Calcutta, the 20th June 1872.

It has come to the notice of the Lieutenant-Governor that practically no rule is observed in regulating the grant of leave of absence to Government servants who are summoned by private parties to give evidence in civil suits before courts of justice; that in the High Court at Calcutta they receive an allowance from the parties requiring their attendance, but that no deduction from their pay is made on account of their absence from duty, and indeed that such absence is never reported to the office of the Accountant-General.

2. His Honor is pleased to lay down the following rules on the subject, and desires that they should be strictly observed:—

1. If Government servants are summoned from a distance to attend as witnesses in any civil courts of justice at the instance of private parties, they must report the fact to Government if they are gazetted officers, or to the heads of their departments if they are ministerial officers: the Government or the head of the office will decide whether the witness should be allowed casual leave, or whether he should have leave without pay, and whether a substitute should be entertained.

2. The heads of all offices must take care to see that when Government servants attend a court in their own districts on being summoned by a private party, the public service does not suffer and the witness benefit.

3. The allowances other than travelling expenses paid to such witnesses should in all cases be either used to provide a proper substitute for the performance of their duties during their absence, or should be credited to Government.

Ordered that a copy of the above be forwarded to all heads of offices and departments under this Government for information and communication to their subordinates.

Ordered, also, that a copy be forwarded to the Revenue, General, Appointment, Political, and Public Works Departments of this Office.

No. 609C, dated Fort William, the 30th November 1872.

From—T. B. LANE, Esq., Secretary to the Board of Revenue, L. P.

To—The Offg. Secretary to the Government of Bengal in the Judicial Dept.

WITH advertence to the Government circular marginally noted, on the subject of the grant of leave to Government servants who are summoned by private parties to give evidence in court, the Collector of Customs at Calcutta has submitted the accompanying memorandum from the Superintendent of the Preventive Service, together with a letter from Mr. G. Scott, Preventive Officer.

1. Circular from the Government of Bengal in the Judicial Department, No. 31, dated 20th June 1872.

2. Mr. Scott appears to have been summoned to give evidence in a private case, and the press of work did not allow of his obtaining leave without the appointment of a substitute, as Government could not be put to any expense in the matter. The result is that Mr. Scott, being bound to attend the summons of the court, loses his pay; and at the same time being on leave without pay, is liable to have a day's loss of service counted against him. In submitting the case, the Collector observed that there is not a case of dispute in the Small Cause Court respecting the receipt or delivery of cargo in which Customs Preventive Officers are not called as witnesses, and that all these in such cases must suffer equally with Mr. Scott.

3. Under these circumstances the Member in charge enquired of the Government Solicitor whether the Small Cause Court does not, on application, pay witnesses for attending the court. From his reply, copy of which accompanies, it appears that the court does not consider itself empowered by law to order any allowances to be made to witnesses; and, with reference to the Government Solicitor's suggestion, Mr. Money recommends that, under the power conferred by section 15, Act XXVI of 1864, the Lieutenant-Governor may be now moved to extend to the Court of Small Causes in Calcutta the provisions of section 151 of the Code of Civil Procedure with respect to the expenses of witnesses—Government servants.

No. 1194, dated Fort William, the 15th November 1872.

From—F. D. CHAUNTRELL, Esq., Solicitor to Government.

To—The Secretary to the Board of Revenue, L.P.

I HAVE the honor to acknowledge the receipt of your letter No. 684C of the 8th instant, and to apprise you that the Court of Small Causes in Calcutta does not consider itself empowered by law to order any allowance to be made to witnesses for attending in that court; no application on the subject would therefore at present avail, but I may perhaps be permitted to point out that a remedy may be found by extending under section 15 of Act XXVI of 1864, if it should be thought advisable, the provision of the Code of Civil Procedure with respect to the expense of witnesses (section 151) to the Court of Small Causes.

The papers which accompanied your letter are returned.

No. 569, dated Calcutta, the 24th October 1872.

From—J. A. CRAWFORD, Esq., Collector of Customs, Calcutta.

To—The Secy. to the Member in Charge, Customs Dept., Board of Revenue, L.P.

WITH reference to circular of the Judicial Department of the Government of Bengal, dated 20th June 1872, on the grant of leave to Government servants who are summoned by private parties to give evidence in court, I have the honor to forward herewith a memorandum* from the Superintendent of the Preventive Service, accompanied by a letter from Mr. Preventive Officer G. Scott.

2. It will be seen that Mr. Scott was summoned to give evidence in a private case. The press of work did not allow of Mr. Scott's getting leave without finding a substitute, and as Government cannot be put to any expense, Mr. Scott, who is bound to attend the summons of the court, loses his pay, and at the same time, being on leave without pay, is liable to have the day's service counted against him.

3. There is not a Small Cause Court dispute which arises regarding the receipt or delivery of cargo in which Customs Preventive Officers are not called as witnesses; and all these in such cases must suffer equally with Mr. Scott.

4. I therefore bring the matter to notice, in the hope that the Customs Preventive Service may obtain some relief.

5. I would suggest a reference to the law officers of Government as to whether there is no possibility under the Small Cause Court Act of a witness obtaining his expenses from the party calling him.

No. 113L, dated the 1st October 1872.

Memo. by—CAPTAIN H. LAURELL, Superintendent, Preventive Service.

UNDER resolution in the Judicial Department passed by the Lieutenant-Governor, a Government servant summoned by private parties to give evidence in a civil suit before a court of justice should be allowed casual or leave without pay at the discretion of the head of the office; and all allowances other than travelling expenses paid to such individual should be credited to Government, or used to provide a substitute, in order that Government may have not to bear any expense. In the case under notice Mr. Scott was summoned to the Small Cause Court by a private individual to give evidence in a private case, but the transaction of which happened to be witnessed by Mr. Scott (a disinterested party) in his official capacity as Preventive Officer.

The circumstances under which Mr. Scott was summoned do not appear to justify his evidence being of any benefit to the case either one way or the other; but as far as he is concerned, he was bound to obey the order of the court as much as this office is bound to receive and forward a summons to a Preventive Officer on duty.

Casual leave can only be granted when the Government is not put to any extra expense; and at present, owing to the pressure of work, Mr. Scott could not obtain relief from his duties without Government being put to extra expense. Mr. Scott would, according to the Government orders, have to lose his day's pay, as the person who subpoenaed him did not give him an allowance, nor did the court allow any, although Mr. Scott applied for Rs. 3-4, being the amount Government had to pay for the officer who relieved him.

Mr. Scott's case applies to the officers of the service generally, who are often summoned as witnesses in cases unconnected with their duties, but which they have cognizance of, owing to their having been on boardships on duty. To make them lose their pay and service on their being so summoned is hardly, I think, the intention of Government, and I beg to submit the case for the order of the Collector.

Dated Calcutta, the 27th September 1872.

From—MR. G. SCOTT, Preventive Officer.

To—CAPTAIN H. LAURELL, Superintendent, Preventive Service.

IN reply to your memorandum No. 256 of the 25th instant, informing me of having to pay for a substitute to enable me to attend the court, I beg to state that I was attached to the ship *Walter Baine* when the captain engaged a steward for the ship, and which took place in my presence whilst on duty on board the above vessel. After my leaving the ship some altercation took place between the captain and steward, and the steward summoned the captain for his wages, and subpoenaed me for my evidence of the engagement between them when I was on board. I also showed your memorandum No. 256 to the court, and asked if the expenses would be paid to me, when I was informed by the court that the court could not do anything for me, as it was no private business of mine, and on duty when I could not avoid being present when the engagement took place. I beg you will kindly grant me the day under Government expense, as I would have to attend court or be fined very heavily for not attending, for which I shall be thankful.

No. 6909, dated Calcutta, the 18th December 1872.

From—L. C. ANBOTT, Esq., for Offg. Under-Secy. to the Government of Bengal.

To—The First Judge of the Court of Small Causes in Calcutta.

I AM directed to forward to you the accompanying copy of a letter, No. 609C of the 30th ultimo, from the Board of Revenue, recommending the extension to the Court of Small Causes in Calcutta of the provisions of section 151 of the Code of Civil Procedure with respect to the expenses of witnesses who are Government servants. Before taking any action in the matter, the Lieutenant-Governor would be glad to know whether the Judges of the Court of Small Causes see any objection to the proposal made by the Board, or whether they can suggest any other remedy for the inconvenience at present existing.

No. 39, dated Fort Willam, the 5th February 1873.

From—G. S. FAGAN, Esq., First Judge, Calcutta Court of Small Causes.

To—H. I. DAMPIER, Esq., Secy. to the Govt. of Bengal, Judicial Dept

IN reply to your office letter No. 6909, bearing date the 18th December last, I have the honor to state that section 15 of Act XXVI of 1864 authorizes the extension of certain parts of the Civil Procedure Code to this court, but not with modifications. If, therefore, His Honor should see fit to extend section 151 of the Code to this court, it would have to be extended as it stands, and could not be limited to the special case of Government servants, as recommended by the Board of Revenue. This appears to me an insuperable objection to the proposal made by the Board.

2. With reference to the concluding words of the letter under reply, it seems to me that neither the Government nor its revenue officers undergo any

special inconvenience which is not shared by every other member of the Calcutta community. The cases are not very numerous in which Preventive Officers are summoned as witnesses; but where they do not occur, it seems to me that the giving of evidence regarding a tally is as much a public service as the taking of the tally itself. At all events the Government in these cases suffers no greater inconvenience than is suffered by every mercantile firm, large or petty, whose clerk is called upon to give evidence in a private case. The remedy, therefore, would appear to me for the Government to give to the Collector or other revenue authority directions to allow the day's pay to any Preventive Officer who was *bonâ fide* in attendance on a court of justice on a subpoena or other order, accompanied with a discretion to refuse that allowance if the revenue authority should see cause to believe that the attendance was not *bonâ fide* and compulsory, but had been brought about by the Preventive Officer's own contrivance or suggestion. The loss to the Government would be small, and would, it seems to me, be very insignificant in comparison with the mischief which would ensue upon the creation of an invidious distinction in favor of Government servants generally as a body, or of Preventive Officers as a special class of that body.

3. As to the proposal made by the Solicitor to Government in his letter of the 15th November last, addressed to the Secretary to the Board, (copy of which has been forwarded with the letter under reply), viz. that section 15 of the Code should be extended to this court *without* alteration, I do not understand that my opinion upon that is desired. Such an extension might undoubtedly, as I have already stated, be legally made; but the policy of making such an extension opens up a wider question affecting the utility of this court, and the cheapness of the remedy which it was intended to afford and does afford to suitors. If, in the 30,000 or 40,000 suits which are annually instituted in this court, the expenses of all the witnesses required by either party are to be paid beforehand, the institution and defence of suits here will certainly be considerably increased in expense, and *de minimis curat ex*, which is the fundamental maxim of this court, will be in a very considerable degree less applicable to it.

4. This is one of several considerations which will no doubt occur to His Honor should His Honor think of adopting Mr. Chauntrell's proposition.

No. 911, dated Calcutta, the 11th February 1873.

From—A. MACKENZIE, Esq., Offg. Secretary to the Government of Bengal in the Judicial Department.

To—The Secretary to the Board of Revenue, L. P.

WITH reference to your letter No. 609C of the 30th November last, and its enclosures, regarding the hardship to which Government servants summoned to give evidence in private cases in the Calcutta Small Cause Court are subjected by the operation of the rules laid down in the Government resolution of the 20th June last, in consequence of no expenses of witnesses being paid by that court, I am directed to forward herewith a copy of a letter from the First Judge, No. 39 of the 5th instant, and to say that, under the circumstances therein set forth, the Lieutenant-Governor does not consider it expedient to extend the provisions of section 151 of the Civil Procedure Code to the Calcutta Court of Small Causes, either generally or as regards Government servants. While, therefore, the rule of that court remains what it is, Government servants summoned for an hour or two as witnesses should not be subjected to any deduction of pay unless it is absolutely unavoidable. For the rest, Government servants are in the same situation as private individuals, and it would be as impossible to make a rule that Government should pay when Government servants are summoned as that private people should be paid by Government for the loss of their time when summoned by parties to proceedings in the Calcutta Small Cause Court.

2. It seems, however, to the Lieutenant-Governor to be a strange state of things that the whole community should be liable to be summoned as witnesses by private parties, and that there should be no means of remunerating them. The Lieutenant-Governor will, in the event of any amendment of the Small Cause Court Act, consider if it may not be possible to give discretionary powers to the Calcutta Small Cause Court Judges to order payment of witnesses' expenses.

VIENNA AND LONDON INTERNATIONAL EXHIBITIONS OF 1873.

THE following report is published for the information of District Officers, as showing the kind of memorandum which the Bengal Committee for International Exhibitions desire to obtain in reply to their Circular No. VI.

No. 42, dated Furreedpore, the 31st January 1873.

From—DR. B. N. BOSE, Civil Surgeon of Furreedpore.

To—W. S. WELLS, Esq., Magistrate and Collector of Furreedpore.

IN compliance with your memorandum No. 1375, dated Camp Goalundo, the 27th December 1872, forwarding, in original, Circular No. VI, from H. H. Locke, Esq., Secretary to the Bengal Committee for the London and Vienna International Exhibitions of 1873, dated the 14th idem, to your address, for information such as therein called for, I have the honor herewith to submit a report as follows—in the order the subject is arranged in the circular, viz. food, drink, and smoking.

ANIMAL FOOD.

FISH.

The subjoined list contains all the edible fishes ordinarily met with in the district under each class:—

SEA-FISH:

The only sea-fish, if it may be so-called (properly speaking it is a brackish fish), which occasionally visits the Ganges, is the *veeli Coius vacti*, known in this part of the country as the *korail machh*. It is, I believe, only met with in the Pudma, and is a highly esteemed fish, often attaining a length, when full grown, of between 4 and 5 feet, and weighing from 50 to 100lb. Small sizes are common in May and June.

RIVER-FISHES:

The principal river-fishes may be enumerated as follows. I should here remark that many of these fish also inhabit the lakes, jheels, and tanks, where they either find their way during the inundation, or may be artificially introduced when young for breeding purposes.

SILURIDÆ OR NAKED FISHES—genus SILURUS:

Silurus pelorius (*boali*, (बोली)).

This fish often attains a pretty good size, from 3 to 4 feet long, and is one of the most voracious inhabitants of the fresh water, subsisting chiefly on crustacea and small fry of all kinds: hence it is always dreaded in tanks where fish is preserved. It has been known sometimes to snap at a frog, and would not hesitate to take even a rat, if in its way. The flesh of the boali is pale white, coarse, and loosely disposed, and almost tasteless, consequently little relished.

Silurus pabda (*papta*, (पप्टा)).

This is a small flat fish, seldom reaching quite a foot in length, with a white, smooth, shining skin, and a rich delicate flavour. It is one of the best-tasted of the tribe, and a good, wholesome table fish. It can be procured nearly all the year round.

Genus PIMELODUS:

The members of this genus furnish some important species, of which the largest and most common, viz. the *air*, *paor*, *pangas* (*papta pangas*), and *dhye* (*papta silondia*), constitute a considerable part of the fish diet of the lower orders. The *air* is composed almost entirely of muscular fibre, but the other two species are loaded with fat, which is often deposited in a considerable layer under the skin: hence they possess a rich flavour. *Papta tangra* and *papta rita*, although the smallest of the group, are in greater request for their wholesome and agreeable flesh. They are also very common fishes. There is another of these fish which is scarcely less valued, viz. the *bacha papta bacha*. It is a flat fish about a foot long, and its flesh is sweet and highly flavoured.

Genus MYSTUS.—*Mystus Chitala* (*Chittol*):

So called from its habit of frequently rising to the surface and then suddenly turning flat before plunging again. This is a large flat fish, very oily, and full of bones, and far from very wholesome, although much prized by the natives of the eastern districts. The same remark applies to its dwarf representative, the *pholi* (फोली).

CLUPEIDÆ :

The herring family supplies a number of important species, such as *phansa* (*Clupea phasa*), *hilsa* (*Clupanodon ilisha*), and *chella* (*Clupea cultrata*). They have white shining scales, are very bony, and provided with an air bladder. The two first only inhabit the rivers; the third is also found in tanks and other stagnant waters. The *phansa* and *khoira*—which is allied to it—mostly appear during the dry season, but the other kinds may be had nearly throughout the year. The most valuable of these fish no doubt is the *hilsa*, which is captured in vast numbers in the district during the rains as they ascend the streams to spawn, and after fairly glutting the local markets, the remainder is cut up and salted for import to Calcutta and other places. The great estimation in which this fish is held is well known.

MUGILIDÆ :

The mullet tribe is represented by the common *khorsola* (*mugil khorsola*), which is to be had here in good condition all the year round. It is a rich, delicious fish.

PERCIDÆ :

From the perches is derived the well known mango-fish *Polynemus paradiseus*. Only a few are caught here during the early mango season, but I hear they are more common in the rivers towards the south-west of the district, as near Babookhaloe.

GADIDÆ, or the Cod Family :

To this family belongs the *bhola* (*Gadus bhola*). This is a common fish, few boned, and well flavoured; but, curiously enough, it is little thought of by the natives. It generally grows to about a foot long.

CYPRINDÆ, or the Carp Family :

These fishes have feeble jaws and no teeth in the mouth, but instead a powerful dental apparatus in their pharynx. They are mostly fresh water inhabitants, subsisting chiefly on vegetable matters, and found in great numbers in all rivers, lakes, and ponds. Many of the tribe attain a large size, and their flesh is generally good, wholesome, and agreeable. The following species are the most common:—

Cyprinus Rohita (*ruhi*, रूहि).

This has a small mouth, short stout head, and reddish brown scales. It is one of the best Indian fishes. The ordinary length of the *ruhi* is about 3 feet.

Cyprinus Katta.—*Katta* (କଟ୍ଟା ମତ୍ସ୍ୟ).

It is known by its large head—proportioned to the body—a wide mouth, and pale bluish scales. It is a gregarious fish, and found swimming in shoals in open water, just below the surface. Also much prized.

Cyprinus Kalbasu.—*Kalbosh* (କାଳବୋଷ ମତ୍ସ୍ୟ).

Has a small mouth, narrow muzzle, and black scales. It is a sweet, well-tasted fish, and very voracious.

Cyprinus Mirga.—*Mirgal* (ମିର୍ଗା ମତ୍ସ୍ୟ).

It resembles the *barhal*, without its cirri at the mouth. It is generally found in the muddy bottoms of rivers and tanks, and has a muddy taste. Sometimes attains a length of from 5 to 6 feet.

CRUSTACEA :

Of the shell-fish, *Astacus Fluvialis* (*Golda Chingri*) abounds in all the rivers. Vast quantities of these are caught in the inundated fields at the close of the rains, when they enter largely into the dietary of the people.

TANK-FISHES :

As I said before, many of the so-called river-fish are also found in the still waters of lakes, brooks, and tanks. The pure tank-fishes however, or those inhabiting solely stagnant waters, may be described as follows. As may be expected from their limited *habitat*, they are comparatively fewer in number than those living out in the open streams and the great deep.

Silurus Batrachus.—*Mágur* (ମାଗୁର ମତ୍ସ୍ୟ).

This fish is about a foot long; has a large obtuse head; skin thick and black, shading to a light yellow in front; and the flesh reddish and tender. It has a delicate flavour, and is much sought after by the natives. Abounds in all still waters, especially in weedy, swampish places.

Silurus Pungentissimus.—*Singhee* (ସିଂହୀ ମତ୍ସ୍ୟ).

So called from a fearfully pungent sting it inflicts with its dorsal fin when incautiously handled. It resembles the *magur* in every respect, excepting that it is slenderly formed and fond of very muddy situations. It is not in much request.

Clupea Cultrata.—*Chellá* (চেল্লা মাছ).

See before. May be seen in shoals actively swimming in the surface of all tanks. It is a very greedy fish, and a most useful scavenger in the water where much bathing and washing is practised.

Cyprinus Putitoria.—*Puntees* (পুঁটে মৎস্য).

Two species are known: one about a couple of inches long, and the other often attaining a foot—the former being one of the most common and numerous of the tribe.

The *dancannee* and *mourulla*, the two still smaller and more numerous species, also belong to this group.

Ophicephalus Latta (লাটা মৎস্য).

This likewise includes two varieties, the *Latta* and *Soti*; the one usually measuring about half a cubit, and the other often two cubits, and even longer. They are very solitary in their habits, and abound in all swampy places. Their flesh is not much esteemed.

Coius Cobojius and *Trichopodus Colisa*.—*Coéé* and *Khalisa* (কোঁই ও খলিশা মৎস্য).

These belong to the order of *Pharyngine laborunthiformis*, so called in consequence of their possessing a peculiar sacculated structure in the pharynx, which can be filled with water, and by this means they are enabled to perform tolerably long migrations on land in search of a new *habitat*. They are to be found in greater or less abundance in all stagnant waters. The *coéé* is a rich, delicious fish, and accordingly highly prized.

Zeus Oblongus—*Chanda* (চাঁদা মাছ).

A little roundish, flat, bony fish. Not much cared for.

Lacerta Scin Cus.—*Balia* (বালিয়া মৎস্য).

A very common fish of the fresh water. It seldom reaches a foot. Not in great demand.

MURINÆ:

Two kinds of eels are met with—*báin* and *punkál*, to be found everywhere in old, muddy bottomed waters. The *bain*, when fried or curried, is not a badly tasted fish.

Cragnon Vulgaris.

The common *chingree* of course abounds everywhere, and offers a cheap and ready source of animal nutriment to the poor people at all seasons. I need not say that this and the *golda chingree*, although commonly called fishes, are invertebrate animals, belonging to the articulated sub-division of the animal kingdom.

Whether there is any reason to suppose that the supply of fish is falling off.

The supply is not diminishing here. I can speak from a personal local experience of upwards of 15 years, and certainly during this time I have never noticed such falling off; on the other hand, the markets always appeared fully as well supplied, and sometimes as glutted as ever. Only last year I know the quantity of hilsa brought for sale so far exceeded the demand for days together, that actually basketsful had to be thrown away unsold at the close of the day's operation, as often obtains in other years.

Whether fish is largely consumed by the people of the district; and if so, to what extent and by what classes.

I do not know whether it is from the abundance of fish, or other cause, the natives of this part of the country appear to be the most voracious fish-eaters that may be found anywhere. All classes consume it largely, and even many Vaishnavas and widows, who usually abstain from it elsewhere, where fish is scarce, eat it here. The exact quantity cannot be ascertained, but I may safely say that it forms a large part, or the bulk, of their animal element; and in certain seasons, when fish is unusually numerous and abundant, the lower classes may be said to almost live on this diet for the time being.

What castes or classes of community consume fish.

During the hilsa season, which generally lasts from April to July, a large salting business is carried on on the banks of the Padma at many points, in order to supply this fish to Calcutta and other distant markets. No other fish is so treated, and none smoked or dried. The abundance of oil which the hilsa contains, and which it gives out freely on frying in the process of cooking, is sometimes carefully collected and kept by the lower orders to cook their food with in other seasons, as well as for burning purposes.

Localities of the principal fisheries, and the class or castes employed in the industry.

The places where fish are taken in large numbers are the rivers *Pudma*, *Chandana*, *Madhumati*, and the *Cumar*, and the numerous lakes and jheels scattered over the district, especially towards the south. Fish are also caught largely from the surface of the country, generally while under inundation during the rains. The river fisheries, however, particularly those of the *Pudma*, are the most valuable, and constitute the chief source of supply. The industry is pursued by three classes or castes—viz. 1st, the *jalliahs*, literally men who ply the net, or professional fishermen (they are all Hindus) who catch the fish; and the 2nd and 3rd, dealers in the article, known respectively as *nickuries* and *karrats*; the former being Mahomedans, and the latter a separate caste of Hindus.

METHODS OF CATCHING FISH :

The following methods are employed :—

1. *By the Hand* (হাত দ্বারা) :
This is only practicable in shallow waters and pools drying up.
2. *By rod and line* (ছীপ, সূতা).
This is extensively practised by all classes.
3. *By line and reel* (ছাতসূতা).
The reel is usually a piece of hollow bamboo of the proper size fitted to a wooden axle or centre-piece. (See specimen.)
4. *By rod, line, and spear* (ছীপ এবং বরশা).
A bait is used of a small live fish hooked through the dorsal fin and kept playing on the surface of the water as a decoy, and any large fish attracted to it is at once despatched with the spear, held in the angler's right hand.
5. *By spear alone* (কোনল বরশা).
Several kinds of spears are in use, and they consist either of a single piece throughout, or of three or more prongs tied in a bundle. Some spears are straight, and some hooked. Of the former, some are simply pointed sticks of bamboo, and some tipped with iron; but the latter are all iron weapons, distinguished as *konoh*, *jote*, and *tanta*.
6. *By baskets*
Such as *palo* (পাল) and *honcha* (ছোচা). (See specimens.)
7. *By various traps.*
All made of bamboo. Of these the commonest kinds are—(1) *khadum* (খাদুম), (2) *ban-nay* (বানায়), (3) *arinday* (আরিন্দায়), (4) (*chára* চারা), (5) *ravane* (রাভানী), (6) *tupa* (টুপা), (7) *duar* (দুয়ার), (8) *bonchna* (বোনচনা), (9) *gunsi* (গুন্সী), (10) *paran* (পারান), (11) *chaye* (চই), (12) *Nye* (নই). পুং (13) *phansi* (ফাঁসী). (See specimens.)
8. *By what is called a bánd* (বান্দ).
This is done by raising a mud embankment on either side of a *khal* or *nulla*, so as to limit the current to a narrow midspace, which is then closely staked with bamboo, or a strong wicker work or paling of the same material sufficiently high to prevent the fish from jumping over; but they can easily leap over the embankments at the sides where pits are dug before and behind to receive them, when they are at once captured.

By Net :

These are of various kinds, according to the sort of fish to be caught—large or small, the locality of fishery, whether streams or still waters, or the water is shallow or deep. The following are the most common.

1. *Mohi jal* (মহী জাল).
This is a kind of trawl net dragged in deep water along the bottom by the fishing boats, and may be used for all sizes of fish. The usual size is about 25 feet long at the upper, and 35 feet at the lower side, and 15 feet deep.
2. *Kona jal* (কোনা জাল).
This is a long, funnel-shaped net, with a valvular arrangement at the mouth, or wide end, and dragged along by boats as the last. It is usually from 500 to 600 feet long.
3. *Bayér jal* (বেড় জাল).
This is a deep seine net.

4. *Chhandi jal* (ছাঁদী জাল).
This is also a seine net, but not very deep, nor buoyed up by floats to the surface. Used for all small fish.
5. *Dora Chhandi* (দোড়া ছাঁদী).
This is like a chhandi, but with thicker and wider meshes, intended for large hilsa and other large fish. All these seine nets could be extended to several hundred feet by joining with others.
6. *Kheppla jal* (খেপ্পা জাল).
This is a circular net, with small weights attached to the circumference and shot on the water by the hand. It is used for all kinds of fish. It is pulled up by a string tied to the centre outside.
7. *Khara jal* (খাড়া জাল).
This is a triangular form of net, of which the broad end is dipped in the water and raised with a bamboo pole.
8. *Bhesal jal* (ভেশাল জাল).
Like the above, but it is dragged by a boat.
9. *Dhurma jal* (ধূর্মা জাল).
This is a square jal with a cross arched frame over it, and the whole pulled up now and then with a pole.
10. *Sānghā jal* (সাঁঘা জাল).
This is a drift net, with the borders armed with a bamboo rib acting like jaws and closing by a drop or weight at the pleasure of the fisherman. It is dragged along the bottom, and used also for hilsa fishing.
11. *Khārki jal* (খাড়কী জাল).
Like the above, but not dragged along the bottom.
12. *Chak jal* (চাক জাল).
Is a circular hand-net with a bamboo frame all round. It is dragged with the hand in shallow water.
13. *Cháp jal* (চাপ জাল).
It is a cylindrical hand net for shallow water fishing.
14. *Houcha jal* (হোচা জাল).
Is a triangular hand jal, used as above.
15. *Souta jal* (সোতা জাল).
This is a funnel-shaped jal, which, as the name implies, is set with stakes in a place where there is a current; the wide end being directed upstream.
Fish are eaten boiled, roasted on fire, fried, stewed, and made into jhol, ambol, and curries. See under Native Cooking.

II.—POULTRY, GAME, AND BUTCHER'S MEAT.

This subject will be briefly noticed under the following heads:—

Gallinacia, or the poultry tribe.

The common domestic fowl, *Gallus domesticus*, is largely reared in the district by the Muhammadans, who constitute more than three-fifths of the population, both for local consumption as well as for export to Calcutta. It is for the most part the women who attend to the management of the poultry yard. No household of a Muhammadan may be said to be complete without its pair or pairs of living hens with a large cock or two, and generally a fair stock of the intermediate breed. In many houses a small separate hut, thickly staked with long bamboo pegs outside to prevent depredations from jackals and other wild animals, is specially provided for the accommodation of the poultry. In others, however, where no such provision is made, the poultry either shares the same room with its human inmates, or it may find shelter in the cow-shed. They are let go all day, and it is of course an understood thing that they must pick up their own food as best they may from what they can get about the house, unless it be the young brood or the hen sitting on the egg, when some dhan or other suitable food has to be found. Most of the poultry thus reared is intended for the market. A few stray quails are occasionally seen. No other members of the tribe inhabit the district.

Columbula.

The ordinary black pigeon, *Columba livia*, *Pyara*, *kalla cabutar*, occurs sparingly, and a few are domesticated for sale. Doves abound in all parts of the district in the wild state.

Palmipidae.

The common duck and goose are not extensively reared, although their flesh is not the less relished, especially among the Hindus, who do not use other poultry. They, however, abound in great variety in a wild state in the district, and in the winter large numbers are caught in nets for sale in the local markets. The ordinary goose net is a light wide meshed net, 20 to 40 feet long and 10 to 12 feet broad, set at dusk, stretched between two or more long poles of bamboo at a spot, generally a shallow piece of water on the side of the river, where the geese are known to resort for the night from their different feeding grounds. By and by, when it is very dark and everything is hushed, at a preconcerted signal, tremendous shouts are raised from all sides excepting from that where the net is, the noise gradually increasing until at last the startled flock take to flight, and in doing so are immediately entangled in the net spread for them.

Chelonida—or turtles, *bakrals* (বাকুরল).

Two or three species inhabit the Ganges, but they are never eaten.

Emyde.

Fresh water or mud turtles. Several varieties are met with in the fresh waters. Of these, however, only one, called the *dur*, seems alone to be much prized. The Muhammadans appear to have a strange antipathy to the flesh of these amphibians.

Testudina—land tortoises, *katchhabs* (ক্যাচহা).

These are not uncommon, but seldom sought after for food. The Bunoahs are, I believe, the only people who eat them.

Suidæ.

A piggery is to be seen here and there, kept by the Chamar caste, and the Bunoahs sometimes hunt the wild pig, which abounds in the villages. They are the only pork consumers in the district.

Ruminantia.

This tribe supplies beef, mutton, and the goat's flesh, but as they constitute rather a costly kind of food, they are seldom resorted to by the working classes. A Muhammadan would feed upon these indiscriminately, but the Hindu, for religious scruples, is obliged to confine his taste between the flesh of the sheep and goat only; even these he dare not use unless the animals are previously sacrificed to some god or goddess. The consequence of the restriction is, that he can seldom gratify his appetite with the flesh of the only ruminantia he is permitted to eat. The degenerate Bengal varieties of the ruminantia under notice are too well known to require further description in a report like this. For the ordinary dishes of meat used both by Hindus and Muhammadans, see further on—under Native Cookery.

III.—DAIRY PRODUCE.

From milk the following preparations are derived:—*Butter, ghee, butter-milk, doye, chhanna, cream, mallaye, kheer, khirsa, pat khirsa, and pheni khirsa.*

Butter (makhan, noni).

It is prepared in two ways, of which the most commonly pursued by the *gowallas* (milk-sellers) is as follows:—It consists in first boiling the milk to a certain consistence (not at all thick), and when perfectly cool, agitating it by a bamboo churn (see specimen) till the butter rises to the surface, when it is skimmed off and washed in cool clean river or spring water to be ready for use. The second process is the same as the last, but before churning the milk is converted by some acid into what is called *doye*. A portion of sour butter-milk from a previous fermentation is often used for this purpose. The operation of churning should be very slowly performed in the hot weather, otherwise the butter will be too loose and soft; on the contrary, in the winter the quicker it is done the better, and no addition of cold water is needed. The ordinary price of butter is a rupee per seer, or shilling a pound.

Ghee.

This is simply the butter in the melted state by heat. Butter in this state will keep many months without turning rancid, and it is on this account that ghee is so much preferred in all hot climates. Ghee sells at the rate of a seer to 18 chittacks per rupee.

Skimmed milk.

This is the residuo of the churning according to the first process, and contains all the ingredients of the milk minus its butter. It is either converted into an inferior variety of *doye*, much used as a cooling, agreeable adjunct to other food, or eaten made into a *kheer* with boiled rice.

Butter-milk (ghole or matta, ঘোল বা মাটা).

It is the remains of the second process of churning, and, excepting that it is slightly acid, equally as good and nutritive as the skimmed milk.

Doye (दूध).

Properly speaking it is simply milk which has been curdled, or has undergone lactic fermentation by some acid, often a portion of the same substance from a former operation. It differs little in fact from bonny clabber, or slip, made by turning milk with rennet, which is so much relished in Ireland and other countries.

Chhanna (छाना).

This is prepared by coagulating hot unskimmed milk by pouring a little acid of some sort, and afterwards separating the coagulum thus formed by pressure through a bag of stout linen or cotton cloth. It contains all the caseine and oily portion of the milk, the fluid left behind being whey consisting of its other constituents. *Chhanna* is in fact nothing more or less than a superior kind of cheese, as the Cheshire cheese, in its fresh state. It constitutes a delicious article of food when sweetened. For preparations of *chhanna*, see Sweetmeats.

Cream (सर, मर).

The cream of this country is the thick coagulated layer, consisting chiefly of caseine and butter, formed on the surface of milk which has been heated in an open vessel for some time and then allowed to stand for a while to cool.

Mallaye (मल्लये).

Is the thick cream prepared as above, previously sweetened by the addition of some sugar. A rich kind of *doye* made from concentrated milk is also sometimes known as *mallaye*.

Kheer (कीर).

This is inspissated milk, or milk deprived of its aqueous portion by slow heat. For preparations of *kheer*, see Sweetmeats.

Khirsā (कीरसा).

Prepared by continuing to simmer the milk on a slow fire, with the addition of a small quantity of flour or rice meal till it assumes a rich brown color and the consistence of custard, when it is removed and put by for use.

Pheni khirsā (फेनी कीरसा).

When the above is prepared with a little sugar.

Pat khirsā (पात कीरसा).

Is made by evaporating the milk on a brisk fire with the addition of a little salt, and when freed from all aqueous particles, it is poured out on plantain leaves and allowed to assume a solid form by the action of cold air.

Cows' milk is the only one procurable in the district, and sells from 10 to 16 seers the rupee, according to season.

IV.—HONEY.

See specimens of comb, honey, and bee. The honey of the district is very inferior, and some sorts have a bitterish taste.

V.—LARVÆ.

These are never eaten.

VI.—VEGETABLE FOOD.

This is a most numerous and important division of aliments, and may, for convenience and with some approach to a sort of scientific arrangement, be best treated in the following order in substitute of the classification adopted by the Committee for the International Exhibition of 1873:—

1. AMYLACEOUS ALIMENTS, or those aliments having a superabundance of starch in their composition, such as rice, wheat, barley, potato, mankachu, &c.
2. AMYLO-ALBUMINOUS OR AMYLO-LIGUMINOUS ALIMENTS, or those having a nitrogenized principle resembling albumen in addition to much starch in their composition, such as the different pulses, beans, &c.
3. OLEAGINOUS ALIMENTS, or those holding an excess of oil in their constitution, such as the various oil-seeds.
4. SACCHARINE ALIMENTS, as the dato and cane, gur and sugar, the many sweet fruits, &c.
5. MUCILAGINOUS ALIMENTS, or aliments in which mucilage abounds, for instance the different pot-herbs or oleracea, and other succulent vegetables.

6. ACIDULOUS ALIMENTS, as the sorrel and all sour and acescent vegetable products used as food.
7. CONDIMENTARY ALIMENTS, as the class of spices.
8. BITTER OR PICROUS ALIMENTS, such as the various bitter substances utilized by the natives in their ordinary dietary.

AMYLACEOUS ALIMENTS.

To this group belong rice, wheat, barley, millets, potato—common and sweet, yams, mankachu, oil, and green plantains.

Cerealia.—Rice, wheat, barley, maize, millet.

The cereals grown in the district are wheat, rice, barley, maize, and millet. It would be impossible to give a detailed account of each of these grains in a report like this, nor is it necessary that we should do so. Wheat, barley, maize, and millet, although not entirely unknown, are sparingly used in the district. Barley again, though to some extent grown, is not an article of general or ordinary consumption. Two or three varieties of millet are also raised, but they are only consumed by the lower classes in seasons of scarcity, when their rice crops fail, as a cheap substitute for that common resource of life. Maize is only seen in the gardens of Europeans. Millet is sown together with paddy in the same fields, and reaped about the same time. Wheat and barley are sown in November and harvested in February.

Species of paddy, with varieties, when sown and gathered, kind of soil, geographical distribution, process of cultivation, &c.

Rice or paddy is more commonly distinguished as aush and amon, according as it is the early or late crop; but there are two other crops, the boro and roa, which are perhaps not generally known.

Aush and amon are generally sown together in the same fields during the early rains in March and April, but never later than the 10th of May in places that are annually flooded. They have the remarkable property of growing rapidly with the rise of water, so that the stem or colm sometimes acquires the extraordinary length of 15 feet or more, according to the depth of water in places where it grows. The aush crops being reaped first in June and July, the pruning which the amon thereby necessarily undergoes, instead of doing any injury to, rather improves that crop, as the shoots become more numerous and stronger after this cropping. It should be here stated that although these fields are very carefully weeded both before and during the rains, it is impossible to rid them of a species of wild grass which ripens almost at the same time with the aush; hence the aush paddy is seldom free from the seeds of this grass: and this is so invariably the case, that the presence of these wild seeds is generally regarded as the best test of an aush crop, or the rice of that name. The amon rice, which is gathered later, and sometimes also grown by itself in separate and distinct fields, is of course always free from this extraneous mixture. The amon crop is generally reaped in October and November, but there is an early species, *asheenc*, which is harvested in Asheen (September). In the same way one variety of aush, called *jolce*, is cut by the end of Bysack or early part of Joyt (May). The other two kinds of rice are cultivated in a different way altogether; they are rice grown by transplantation. The boro is planted in the low beds of bheels and swamps, borders of shallow receding rivers, as the lowest parts of *churs*, *koals*, and *lapechurs*, as they are locally called. The sowing in nurseries from which the plant is obtained is done in Kartick and Aghrahun, it is thence removed to places of final growth in Pous and Magh. In some places irrigation to a certain extent is found necessary, and is had recourse to. The crop is gathered in Bysack and Joyt. The roa is grown in high lands, which are seldom or never submerged during the rains. The plants are raised in beds in Joyt, and thence transplanted in Ashar. Aghrahun is the time of reaping this as well as the amon. All the finer varieties of rice are either obtained from the roa or the amon, seldom from boro, but never from the aush crop. Besides the one defect of the aush rice, viz. its admixture with grass seeds, already pointed out, there are others which render it a very inferior and an undesirable article of food. The grain is coarse, never wholly free from a layer of roddish or brownish colouring matter internally when husked, has a tendency to run together while boiling, especially when new, and scarcely possesses any taste at all. Amon, although generally also coarse grained, is preferred to it, being free from these objections and more agreeable to the palate. Boro is generally coarse, heavy, and less sweet than amon, but superior in every respect to aush. All the superior sorts of rice, as I have already observed, are derived from the roa crop, which, although cultivated differently, may be regarded as another variety of amon, while boro in the same sense may be looked upon as only an inferior sort of aush. The subjoined table will show the varieties, with the general characters of each of these four species of paddy—aush, amon, boro, and roa, grown in the district.

SPECIES.

AMON DHAN.

Long-grained.

Dudráj	... দুদরাজ ।	Guathubi	... গুয়াথুবি ।
Mandráj	... মাস্ত্রাজ ।	Nothasail	... নোথাসাইল ।
Bansiraj	... বাশিরাজ ।	Gorbágha	... গোরবাঘা ।
Pankaich	... পানকাইচ ।	Hijaldighá	... হিজলদিঘা ।
Asvinaboyera	... অশ্বিনাবয়েরা ।	Kaladighá	... কালাদিঘা ।
Dudsar	... দুদসর ।	Hanúmanjatá	... হনুমানজটা ।
Bhojankappúr	... ভোজনকপূর ।	Madhabjata	... মাধবজটা ।
Jhingasail	... জিঙ্গাসাইল ।	Nalchá	... নলচা ।
Pittiráj	... পিত্তীরাজ ।	Dalkachú	... দলকচু ।
Gazibhog	... গাজিভোগ ।	Múktahar	... মুক্তাহার ।
Kartiksail	... কার্তিকশাইল ।	Dudbhanni	... দুদভনী ।
Parwanámuktá	... পরওয়ানামুক্তা ।	Digha	... দিঘা ।
Bagha	... বাঘা ।	Jalungee	... জলজি ।
Manibhóg	... মনিভোগ ।	Shonadigha	... শোনাদিঘা ।
Podamalík	... পোডামলিক ।	Lepa	... লেপা ।
Sitanabbaj	... সিতানব্বাই ।	Bhogalashkar	... ভোগলশ্কার ।
Jhul	... জুল ।	Gilámatiá	... গিলামাটিয়া ।
Loháchud	... লোহাচুড় ।		

Short-grained.

Lakhisálá	... লক্ষীসলা ।	Kanakohúr	... কণকহুর ।
Narikelbadha	... নারিকেলবাধা ।	Khaiámurki	... খৈয়ামুর্কী ।

Middle-sized.

Mahishkayí	... মহীশকাই ।	Bagráil	... বাগরাইল ।
Madhúsail	... মধুশাইল ।	Kachkalam	... কাচকলাম ।
Sindurkaita	... সিন্দুরকৈটা ।	Kalabyera	... কালাবয়েরা ।
Jamaibhóg	... জামাইভোগ ।	Lonábethonia	... লোনাবেথনিয়া ।
Makomra	... মাকোমরা ।	Rangilalach	... রঞ্জিললচ ।

A U S H.

Long-grained.

Kalábhog	... কলাভোগ ।	Pazrú	... পাজরা ।
Sasifúl	... শশীফুল ।	Kumraíl	... কুমড়াইল ।
Malliká	... মল্লিকা ।	Komraíl	... কোমড়াইল ।
Jamura	... জামুরা ।	Shado	... শাদো ।
Sindurkaita	... সিন্দুরকৈটা ।	Pipraíl	... পিপরাইল ।
Pakhiraj	... পক্ষীরাজ ।	Bailabotór	... বাইলাবতোর ।
Maniokmukta	... মনিোকমুক্তা ।	Kalamandras	... কালামাস্ত্রাজ ।
Kapua	... কপুরা ।		

Short-grained.

Piprábalám	... পিপড়াবালাম ।	Dunargura	... দুনারগুরা ।
Binnafúl	... বিন্নাফুল ।	Kalatóp	... কালাতোপ ।
Sultanchapá	... সুলতানচাপা ।	Hingul	... হিঙ্গুল ।
Soudamini	... সৌদামিনী ।		

Middle-sized.

Koutukmani	... কৌতুকমণি ।	Chintamani	... চিন্তামণি ।
Dudmani	... দুদ্মণি ।	Samudraphena	... সমুদ্রফেনা ।
Chhatrabog	... ছত্রভোগ ।	Porabinna	... পোড়াবিনা ।
Karpur	... কর্পূর ।	Suryamni	... সুর্যামণি ।
Bonaram	... বোনারাম ।	Sonakakai	... সোনাকাকাই ।
Lohashala	... লোহাশলা ।	Lukhikajal	... লুক্কীকাজল ।
Kabirmallick	... কবীরমলিক ।	Koohmangal	... কোচমঙ্গল ।
Akasmani	... আকাশমণি ।	Bailám	... বৈলাম ।
Dudsail	... দুদশাইল ।	Ghikai	... ঘিকাই ।

Boro.

Long-grained.

Parangi	... পরাঙ্গি ।	Kaijuri	... কইজুড়ি ।
Kedarchak	... কেদারচাক ।	Sethe	... সেটে ।
Garesvar	... গরেশ্বর ।		

Roa.

Long-grained.

Disi Rayada ... দিশি রায়দা ।

Process of reaping, rotation of crops, cost of cultivation, statistics of area covered by each crop, amount of produce and export, cost of production at various times of the year and in various parts.

All the rice sown in the high lands and in shallow water, when ripe, is cut close to the ground, so as to leave as little stubble as possible, and to save all the straw for cattle; but in deep water only the tops with the ears are cut off, the stems (pal, পাল) being afterwards collected, when the fields are again dry, principally for fuel. No rotation is observed, excepting that in the winter a suitable pulse crop, as maskalai, mug, khesari, or pea, and sometimes a crop of mustard, is generally raised in the same fields, to be shortly succeeded by paddy again as the rains fall. I regret, owing to the very short time allowed, the statistical information required under the remaining heads cannot be supplied. I believe little rice is exported from the district.

Mode of preparing food from the grain : various preparations of food used.

Now, as to the manner of separating the grains from the husk or outer hard covering, the operation is so simple and so generally known, that it needs no detailed description. It is generally done either by a rude instrument, called dhenki or pedal, or by a sort of wooden mortar and pestle, known under the name of ukli. The dhenki works in fact on the principle of a pestle and mortar,—the difference being that in the dhenki the pestle is angular, and placed unequally as a balance on a pivot to increase power, the long end of the balance being towards the mortar, which is a wooden cavity fixed in the ground or floor. The prepared rice is distinguished into either the atab or siddha, according to the process followed preliminary to the separation of its outer covering, or tush, as it is called. The atab, or more properly speaking atap (sun-dried), is obtained from the paddy exposed to the sun before husking in order to loosen the shell more easily from the incased grain. The siddha owes its name to the process of previous steeping and roasting in water which it undergoes for the same purpose. This difference in preparation is supposed to impart additional qualities to the grain. The atab is a lighter grain, sweeter to the taste, and is said to be more digestible; but it is difficult to obtain it entire, and the percentage of loss by *khud* and *kura* (broken rice and dust of rice) in husking is very large. The siddha or ushna, on the other hand, is a heavy and compact grain, and comparatively more difficult of digestion. Again, it takes more time in boiling, and separates more freely from boiling. The finer sorts of atab are known as gobind bhog, cheeni sakkar, and kalijira, and the commoner kinds of siddha or ushna, as balam and chaplas. All the fine rice, as a general rule, is sold off in the bazar by the ryots or cultivators,—not only as fetching high prices wherewith to provide for his other comforts, but as unsuitable for home consumption. It is a well-known fact that the laboring classes would not use them if they find them equally cheap with the other kinds. The servants in the native families in the mofussil, who are fed at their masters' board, would prefer a dish of coarse rice to one of a superior variety, of which latter they say they would require twice the usual

number of meals. From the above it will appear that the agricultural and laboring classes consume the greater part of the coarse rice raised in the country. The aush crop, as coming in at a time when the ryots' previous store of provisions is nearly exhausted, is for the most part reserved for home consumption; consequently the demand for this rice, except among laborers who have no cultivation of their own is usually much restricted at the market. There are some varieties of aush which, having a strong resemblance to the roa or amon crop, are sometimes sold as such. Turning our attention now from the production and manufacture to its mode of consumption, the subject becomes more complicated and the treatment more difficult. Although boiled rice is the general and the more ordinary form of using this alimentary substance, this is not however the only one in which it is consumed. The other most common forms are *khai*, *muri*, *chira*, *chal bhaja*, *chhatu*, and various cakes and pastries too numerous to describe. Reduced to powder, it is also employed not as an insignificant item in native confectionery. See some of these under 'Sweetmeats,' further on. All these substances, if treated at length, would supply the subject-matter of a volume. A few words regarding each will suffice for the purposes of the present report.

Khai (খই).

Khai is obtained from paddy, by roasting or torrefying it on heated sand. The sudden exposure to heat so distends the grain as to make it burst through its outer covering with a loud crepitation; it is then rubbed on a sieve with the hand to remove the fragments of broken husk. It is a very light article of food, and accordingly prescribed by native physicians as a low diet, both in its ordinary form as well as that of a *moudu*, as it is called, made by boiling it to the consistence of a pulp in water; a little sugar and milk are often added. *Khai* enters in the composition of a great many native sweetmeats. Rice is not the only grain from which this substance is prepared. The Indian-corn, seeds of several species of water-lily, and other light farinaceous seeds, may be similarly treated, and also a kind of wild paddy called *bani dhan*, which is extensively consumed in this form.

Muri (মুরী).

This is another very light preparation of rice in its parched form, and tastes, when fresh and properly made, not unlike biscuit. It differs from *khai* in the manner of its preparation, taste, and quality. With regard to the first, while *khai* is prepared from paddy by simply exposing it to the action of heat through the medium of sand over a hearth, *muri* is obtained by a more complicated process altogether. First of all, particular care is necessary in boiling the paddy from which the rice for this purpose is obtained. It has to be boiled twice, and the second time more completely than for ordinary *siddharice*, so that the grain partly protrudes through the husk; it is then dried by exposure to the sun before husking. The effect of this process is to harden the grain, which is distinguished from common rice by its darker colour and harder texture. It is now roasted on a fire in an open earthen vessel, stirring it well, with the addition of a little solution of salt and water from time to time. While this is doing, in another and much larger vessel sand is heated. As soon as they have absorbed sufficient heat, the rice is thrown in handfuls at a time in the vessel containing sand and shaken briskly with a bundle of thin sticks for a minute or two, when the heated grains swell and leap up like electrified beads. The *muri*, thus prepared, is then separated by allowing the sand to precipitate through a perforated earthen vessel to a receiver of the same material. *Muri* is largely used as a *jalpan*, or tiffin, and also made into sweetmeats.

Chira (চিরা).

This is another form in which rice is consumed. It is made thus. The paddy, kept steeped in water for a time, two or three days, is removed to another vessel and partially roasted on fire; it is then beaten flat and separated from the chaff by that useful rude native instrument the *dhenki* already described. The substance thus obtained is tough and difficult to masticate, but it absorbs water gradually, and when thus soaked, it is difficult to distinguish it from boiled rice, which it also resembles somewhat in taste. If natives of Bengal were to betake themselves to a sea-faring life, this substance would answer admirably all the purposes of sea biscuits. It can be kept wholesome for any length of time with ordinary care, and requires no additional preparation, except soaking in water, to render it at once fit for use. Native passengers, when proceeding from one place to another, whether by land or water, and when to obtain a meal of boiled rice is not only inconvenient, but attended with much loss of time, will always prefer *chira* to anything else: nor are the facilities for obtaining it the less, for by the side of the most lonesome roads or river of any importance—wherever, in short, there exists a *mudi's* shop of any sort, if nothing else is to be had, *chira* and its attendant luminaries, *gur*, salt, tamarind, and sometimes *dahi* and plantains, are sure to be procured. Another preparation of the same article is by parching it on a pan of hot sand, called *chira bhaja*, which is also extensively used as a *jalpan*, and likewise as an ingredient of many cakes and comfits. A

kanji is also prepared from this substance, much used as a light, cooling, and nourishing drink for the sick by native physicians.

Chal bhaja (চালভাজা).

It is simply parched rice, extensively made use of as a cheap and extempore jalpan in native families, especially by the women, rubbed with a little mustard-oil and salt, and sometimes bits of raw chillies are eaten with it by way of an additional relish.

Chhatu (ছাত্ত).

These are made by reducing to powder any parched substance or amylaceous grain freshly fried, such as *chal bhaja*, *muri*, *khai*, *chira bhaja*, fried barley, &c. The best is that prepared from barley, and this is the only way, in fact, the latter grain is commonly consumed in Lower Bengal. *Chhatu*s are also obtained from grains, peas, and other pulses, but these are chiefly used in the preparation of sweetmeats, an account of which will be found elsewhere.

Cakes—Pithus (পিঠ).

Most of the native cakes are compound preparations, having for their base flour or rice meal with more or less of sugar and other substances. The simple cakes are few; the rest are sweetmeats, which see.

Boiled rice—Bhat (ভাত).

Its preparation is well known. The secret of the process consists in this, that it should be so boiled that the whole grain will, so to speak, effloresce or become uniformly soft, so that there may be no central hardness or *maz*, as it is called. Old *siddha* rice effloresces better, and absorbs more water in boiling than new rice, which boils quicker and gives more *phan*, rice *kanji*. *Kanji* is generally given away to cows. The relative increase in bulk by boiling of old and new rice on an average is from 4 to 14 of the former and 4 to 12 of the latter; that is to say, if (say) 4 chittacks of either kind were boiled, the old will weigh, when the process is completed, 14 chittacks, and the new will give 12 chittacks. Old rice is always the most wholesome of the two. Boiled rice is consumed either when quite fresh, *garam bhat*, or more or less stale, *thanda* or *basi bhat*. The latter again is used in three forms, viz. *karkara* (cold dry rice), *parishti* or *poriste* (cold freshly steeped rice), and *panta bhat* (the same steeped in water a little longer, so as to acquire a slight acid taste). The *karkara* is usually the residue of the evening meal used in the morning; it can be only preserved wholesome in the cold season. The same rice, in order to be kept fit for use in other weathers, has to be steeped in cold water. The popular distinction between the two forms of steeped rice is that *parishti* is the rice cooked in the morning and kept seasoned in water for consumption in the evening; *panta bhat*, on the other hand, is rice boiled in the evening and preserved in the same way for morning breakfast. The distinction, however, is really one of kind rather than of degree. If the rice has been kept steeped in water for a short time, say not more than six hours, and is eaten when the saccharine matter is being formed in the rice by the decomposition of its starch, it is called *parishti*; on the other hand, when it has been longer in water, and when, after the formation of the greatest quantity of sugar, the process of fermentation has commenced, as is evinced by the slightly acescent taste of the rice, it is the *panta bhat*. The water of the *panta bhat*, which is pleasantly acid, and forms a cooling agreeable drink, is known under the name of *amani*. Both these kinds of rice are very extensively consumed during the hot season by the rich as well as the poor as a cooling and agreeable diet, and not unfrequently ordered by the native *kabiraz* as a wholesome and soothing article of food to the sick laboring under diseases of the bowels.

It is not easy to state precisely the quantity of rice consumed by any one individual consecutively day by day or week by week for any stated period of life, as it varies greatly according to circumstances, such as age, state of health, position, occupation of the party, &c. The seasons of the year also to some extent affect the quantity of rice consumed. In the spring and summer, when an abundant supply of fruit is obtained, the ordinary meals are reduced both in number and quantity. Again, the work of the agriculturist is not uniform throughout the year. During the rains, except occasional visits paid to his fields for weeding and reaping the *aus* crop, he leads a comparatively easy life, unless he employs himself or rather hires himself out for other labor, for instance as a boatman or common cooly. This recess from labor also influences the consumption of food. Taking all these circumstances into consideration, I do not think we would err greatly if we estimate the average quantity of rice consumed by an adult person of the laboring class at 14 chittacks daily, and that of one of a higher sphere of life at between 10 and 12 chittacks, a chittack being nearly equivalent to two ounces Avoirdupois in English weight.

The following may be said to be about the average quantity of food consumed daily by a middling class person, as well as by one of the *chitra* class in the district:—

Middling Class.

Rice	...	...	...	...	...	12	chittacks.
Dal	...	...	...	...	...	2	„
Fish	...	...	...	...	...	2	„
Vegetables (including fruit)	...	...	...	...	...	2	„
Milk	...	...	...	...	...	4	„
Sugar or gur	...	...	...	...	...	1	chittack.
Oil	...	...	...	...	...	$\frac{1}{2}$	„
Salt	...	...	...	...	...	$\frac{1}{4}$	„
Spice	..	...	...	...	...	$\frac{1}{4}$	„
Jalpan	...	...	...	...	...	1	„
Total seer						...	1 8 $\frac{1}{2}$

Ryot Class.

Rice	...	...	...	14	chittacks.
Dal	...	...	...	1	chittack.
Fish	..	...	...	1	„
Vegetables	...	...	...	3	chittacks.
Sugar or gur	...	...	...	$\frac{1}{2}$	chittack, occasionally.
Milk	..	...	...	2	chittacks, „
Oil	...	...	...	$\frac{1}{2}$	chittack, „
Salt	...	...	...	$\frac{1}{4}$	„
Spice	...	...	...	$\frac{1}{4}$	„ occasionally
Jalpan	...	...	...	1	„
Total seer				...	1 4 $\frac{1}{2}$ exclusive of jalpan.

Potato (Solanum tuberosum, gól alu).

Not much grown in the district, but may be always obtained in the bazar, imported chiefly from Dacca. The tubers are eaten boiled, roasted on fire, fried, and also cut up and cooked as an ingredient in many native curries and dishes. What they call the *bhate* of potato is a delicious addition to a native meal. It is made by mashing up boiled potato and mixing it with as much fresh mustard-oil as will give the mash an agreeable pungency. Mustard powder mixed with sweet-oil may be used as a substitute for the fresh mustard-oil.

Sweet potato (Convolvulus batatas, sukarkund, lal alu, mitalu).

It is the long, tuberous, spindle-shaped, red, fleshy, underground stem of the plant, of a sweetish taste, and has a peculiar pleasant flavour. The plant is usually multiplied from cuttings of the trailing stem, which are inserted in ridges in May and June, and tubers are ripe by the beginning of the cold season, eaten like ordinary potato, and also often raw. The young shoots are sometimes used as a *veg.*

Yams (Dioscorca globosa and rubella, chupri and guran alu).

Only two varieties of yams are met with—one long and cylindrical, the other of a round form, and both occasionally employed for culinary purposes. They are fleshy and farinaceous, and may be used as excellent substitutes for potato towards the close of the rains, when they come to perfection, and the latter vegetable is scarce.

Mankachu.

This is the well-known large, tender farinaceous *Rhizome* of *Arum Indicum*, which is always in great request among all classes of the people, and eaten either as a *bhate*, seasoned with salt and mustard-oil, or carried or stewed with other culinary substances. It is both nutritive and wholesome when cooked. A kind of *pato* or white powder is prepared from the dried rhizome by native physicians, called *man manda*, said to possess great curative powers in cases of general dropsy when administered dietetically.

Ol (Arum campanulatum).

The large fleshy globular underground stem of this plant is also now and then used for food. It consists chiefly of starch, gum, water, coloring matter, and extractive, with a peculiar acrid principle, which more or less pervades all the plants of the *Arum* family. This principle, however, is easily dissipated by heat. *Ol* is generally eaten cooked in some acid. The *bhate* of *ol*, seasoned with ground mustard seed and salt, is not an unpleasant dish. A kind of arrowroot might be made of the Indian *ol* by crushing and repeated washing, as in preparing the genuine article of that name.

Green plantain (Musa sapienta, katchkallá).

The different varieties of *musa* yield an unlimited supply of excellent farinaceous fruits, which in their green state, especially the variety called *katchkallá*, are extensively employed as a part of the general dietary of the natives. They abound in starch and mucilage, and when stewed, fried, or boiled, are both wholesome and nourishing. Unlike other vegetables, they are to be found all the year round. They prefer a newly cleared loose soil, and thrive best when with few suckers at some distance apart.

Milletts (Panicum mileacium and panicum italicum).

They are grown together in the same fields with paddy to some extent in the north-western part of the district. (See specimens.)

Saluk (Nymphaea lotus).

The underground root stalk of this water-lilly is occasionally supplemented as food by the lower classes, and sometimes by the native physician as a light diet for the sick.

Arrowroot (Maranta arimdinacea).

Sparingly cultivated, although grows well in garden lands. Mode of preparation is too well known to require description. The farina sent as a specimen was prepared from the plants in the Civil Surgeon's garden.

Paniphal (पनिप फल, Trapa bicornis).

Very common in tanks, and a very common weed in all the jheels in the south, but little used by the people excepting by boys. The roots contain a large quantity of wholesome farina, and may be rendered extensively subservient as food. May be eaten raw or roasted or boiled.

AMYLO-ALBUMINOUS, OR LIGUMINOUS ALIMENTS, CORRESPONDING TO THE CLASS OF PULSES.

As a class, they are equally in as much demand by the people as the cereal grains; and owing to the albumen or caseine they contain, they are perhaps at the same time more nutritive. The pulses, however, although so rich in nutritive material, have this drawback, that they are not easy of digestion: hence they could never be employed as a staple article of food or staff of life. Under this class may be mentioned the beans, peas, *but* or gram, and the lentils.

Beans (makhan seem, canaralia gladiata).

This is a perennial twiner with a large flat, sword-shaped pod from 6 inches to a foot long and about an inch broad, and many brownish seeds, sown solitarily under trees, which it climbs in the course of its growth. When tender, it is as good as any French bean.

Barbatti—Dolichos sinensis.

This is not an uncommon vegetable. Grown in the rains, with long, round, slender pods, which, when young, is by no means an undesirable addition to the table. Eaten either boiled or curried.

Ordinary beans or shims. Lablab.

Three varieties of these beans are commonly met with, viz. one with flat pods, from 2 to 4 inches long and $\frac{1}{2}$ an inch broad; one round and inflated, color blackish green; and one as the last, but the pods are blackish purple, called respectively, *sada sim*, *kala sim*, and *lal sim*. They are all sown during the rainy season, but flower and pod in the cold weather, generally in gardens near trees or huts or entrances of native houses. In the green state the pods are boiled, fried, stewed, and curried. The ripe seeds are occasionally used as dal, but in this form they are not wholesome.

Peas—Pisum sativum, matar, chhoto matar, pyara matar.

The variety of pea with which the people of the district are most familiar, and which they cultivate extensively in the cold season, sown broadcast in fields lightly ploughed just released from the paddy crops as an article of diet, is what they call also *dési matar*, a dwarf species of the common pea. The grains are hard, and look very much like common duck shot, and in fact they are actually sometimes employed as shot. When fried over hot sand (*fut karai*), *matar* serves as an excellent chebbana or native substitute for biscuits, and when boiled, occasionally forms a meal by itself, in lieu of rice, to the needy labourer. It is, however, chiefly consumed as a dal. See Dal under Native Cooking. Ordinarily sold at about a rupee a maund.

Chholá, but—Cicer aritinum.

This grain is not much cultivated, and comparatively has a limited consumption in the district, probably from its being more expensive than other varieties of pulse. The

indigenous ohola is a much smaller seed than that imported from Behar, which is also to be had in the bazars. It is eaten either as a *chebhana* (parched grain), *ghija* (grain steeped in water), with coarse gur or sugar with slices of ginger in way of breakfast, or a prelude to the midday meal, or cooked as a dal. Of all dals, gram is said to be the most strengthening, although rather difficult of digestion. Price, from Rs. 1-8 to 2 a maund.

Lentils.

These papilionaceous seeds furnish the other dals of Bengal, and are as follow :—

Arhar—Cajanus indicus.

Sown in rows along borders of fields and gardens in the early rains, and the crop is generally ripe by the end of the winter season. As a dal, it is universally relished and ground to the form of a powder (*besam*); it is scarcely less prized as forming a convenient basis or ingredient of various native dishes and sweetmeats. *Besam* is also often used as a capital substitute for common soap. Price, Rs. 2 to Rs. 2-8 a maund.

Khesari—Lathyrus sativus.

This is a very common grain, and is extensively grown, both as a quick-growing fodder as well as an inferior dal for the poorer classes. It is cultivated in the same way as peas. It has the reputation of being a very poisonous lentil, but no injurious effects are noticed here. Among the more well-to-do classes, the *khesari dal* is principally consumed in shape of a well-known preparation called *baris*, much used as an ingredient in native cookery. They are made thus—

Baris (▽).

The fresh dal, carefully husked, is steeped in water until sufficiently softened, when it is ground into a fine pulp on a flat mortar; then it is beaten up well with a little water, and when this is nicely done, the batter is quickly moulded with the hand in conical shaped balls and placed in rows on a mat or any thin flat surface to dry. Seeds of *sessamum* and the scrapings of *chalkunra* are sometimes added to the latter to improve the quality and flavour of the preparation. See samples of *baris* sent. Market price, from 12 annas to a rupee per maund.

Masur—Ervum lens.

This is also extensively cultivated in the cold season, and is a favourite article of food with all classes. It is a light dal, easy of digestion, and usually selected for making *kitchries* and *ogras*. See Native Cooking. Price, from Rs. 1-8 to Rs. 2 a maund.

Mug, sona, yellow, and gora, white, mug—Phasiolus awiense, and sublobatus.

This dal is mostly raised in the chur lands by *chhita* sowing, and is the earliest with *maskalai* to come to the market. The character of the *mug* as a wholesome, nourishing, and easily digestible article of diet, is well known. Besides its use as a dal, it is sometimes also eaten raw, previously softened by steeping in water, with sugar, as a morning repast after bathing. Boiled *mug dal* well mashed up with fresh mustard-oil and salt, or butter in place of mustard-oil, is a capital *bhate*, and may be used on the European table as a substitute for potatoes when that tuber is scarce. Price, Rs. 2-8 to Rs. 3 a maund.

Maskalai—Phasiolus mas.

This grain is most extensively cultivated in the district by sowing it broadcast on all lands just emerging from the inundation, the seed being simply scattered on the soft wet ground before it is quite dry. The crop, which is always a most luxuriant one, is gathered by the end of December or beginning of January, when it is readily bought up in the local markets for export to Calcutta and other places. The new grain is generally sold at from Re. 1 to 1-4 a maund of 80 tollahs. It is a most nourishing dal, and, containing a large quantity of mucilage, is most digestible and soothing to the alimentary canal, on which account it is the safest dal to use as a preventive in cases of bowel flux, and when cholera is prevalent. It is also, I believe, the best anti-scorbutic article of diet going. I use it largely in the Ferozepore Jail, and find it in all respects the most suitable dal in the jail. *Maskalai* is also employed for making *baris*, and also a native pan-cake called *sarúchákkli*, which as a change is just as good and palatable as the ordinary pan-cake.

OLEAGINOUS ALIMENTS.

The following may be mentioned as the principal oil-bearing articles in common use among the people, viz. two varieties of black mustard, the *sessamum*, the coconut, and the country almond. *Masina*, *Linum issitatissimum*, is, I hear, grown in small quantities in the northern part of the district; but it is seldom used for dietetic purposes. The same may be said of safflower seed, which, although extensively cultivated for its oil, the latter rarely enters into their dietary.

Mustard-oil and seed.

As I have said, there are only two varieties of mustard grown in the district, viz. the ordinary black mustard—*Senapis nigra*, *surson*, *choité surson*, and *Senapis ramosa*, *rai*, *maghi surson*. Both the varieties are sown in the cold weather, but, as their names imply, one is gathered in Magh—latter end of January and beginning of February, and the other later, in March. Of these the *maghi* is a larger grain, and is the best and yields most oil, three maunds usually giving one of oil; whereas the other sort requires 4 maunds to one of oil. The price of mustard-oil varies, according to the season, from Rs. 14 to Rs. 18 or even Rs. 19 per maund, and the seed from Rs. 3 to Rs. 5 per maund, according to kind. Both the seed and oil are most extensively consumed for culinary and other purposes. In form of a paste (*butna*), the seed forms a necessary component of a number of native dishes, and also as an ingredient of many of their *chutnies*, sauces, and pickles. The oil, on the other hand, is a *sine qua non* in native cookery: indeed there is hardly a dish in which this universal constituent could be dispensed with. Mustard-oil is also largely used for anointing, an operation by no means unaccompanied by many salutary results, some of which it may not be quite out of place to mention here.

(1.) Mustard-oil will, when rubbed over, by uniting with, or as it were saturating, the cuticle, forms a thin glossy elastic layer over the true skin, which will thus render the surface soft and supple, and at the same time the better prevent it from cracking or becoming scurfy.

(2.) The oil, as all oils, being a good non-conductor of heat, it follows that when the skin is smeared with it, it will necessarily serve as a light and cool coating or garment. It will thus afford to the native the cheapest and best safeguard against the violent action of the direct rays of the sun, as also the injurious effects of sudden changes of weather, to which, in consequence of his scanty raiment, he is constantly liable.

(3.) Oil being spread over as a fine and almost impermeable layer, must to a certain extent retard undue loss of fluid from the cutaneous surface generally, and thus cannot but tend to operate beneficially to the general economy.

(4.) Again, by anointing with oil a sort of glossy and slippery coat is formed on the surface, which must protect the skin and the anointer in some measure from all hurtful atmospheric and hydronautic contact, as the dirty stagnant waters in which the native is often compelled to bathe, the bather here being thus enabled to shake off, as it were, the tainted fluid as soon as he emerges from his plunge. A model of the native oil-mill will be found among the specimens.

Til (Sesamum orientale).

This plant is cultivated all over the district for its seed as well as the oil obtained from it by expression. Both these articles are in much request. The seed, in its various forms as ordinary food and oil, is an inferior substitute for that of mustard. The oil, when pure, is sweetish, will keep for months without change or turning rancid, and may be advantageously substituted for olive-oil.

COCOANUT (NARIKEL, Cocos Nucifera):

The cocconut is not so very common as other trees in the district, but still the fruit is much sought after as an occasional article of food. The following parts of the plant are eaten:—

Muth (*capitule*) or the tender inner part of the head, or terminal bud of the tree. It is eaten as a salad, having a sweet taste and a delicious flavour.

Cocconut-water.

Is the liquid contained in the young fruit (*dhb*), which offers a delightful cooling beverage to the thirsty traveller. It has a slightly alkaline and not an unpleasant sweet taste, and acts on the kidneys as a diuretic. It resembles in many respects the common effervescing drinks, and may not be inaptly called Nature's soda water.

Kernel or flesh of the cocconut.

The edible part of the ripe fruit (*shund narikel*) is the white flesh, varying in thickness and firmness according to age, lining the hardened endocarp or shell. In the young cocconut (*dhb*), the flesh is soft and thin. *Naripati*, scraped up with a spoon and eaten with sugar, forms an agreeable morsel. The hardened ripe flesh, although not unpleasant to eat, is not very digestible. The ripe flesh is used variously in native dishes, and as a component of many of their sweetmeats.

The ripe shell.

The Nature-hardened endocarp forms the bottom of the well known common haublebauble of the natives of Bengal.

Bádám (Terminalia catappa, country almond).

This tree is occasionally met with on the road-side, and affords a kernel not unlike the genuine article, *Amygdalus communis*, in taste and flavour.

SACCHARINE ALIMENTS.

All food bodies which are sweet, or contain a sweet principle, may be so denominated, and will naturally include all sweet fruits and the different varieties of sugar and its compounds.

Sweet fruits.

Among these may be enumerated the following kinds, ordinarily found in the district:— The *mango*, the *plantain*, the *pine-apple*, the *jack*, the *áthá*, the *nona*, the *bél*, the *date*, the *guava*, the *rose-apple*, the *star-apple*, the *water-melon*, the *musk-melon*, the *jám*, the *gáb*, the *pomegranate*, the *kul*, the *leechu*, the *púpeya*, and the *depal*.

Mango (Aum, Manifera indica).

This stately evergreen forms alone at least 50 per cent. of the trees grown in the district; indeed the tree is so common that there is scarcely a hut which is not more or less shaded under its widely extended foliage. The tree blossoms about the beginning of February, and the fruit generally ripens by the middle of May. There are at least twenty varieties of the fruit to be seen, varying in size, shape, and flavour; but as they are all more or less infected with a species of beetle, they are scarcely, the few really otherwise good sorts, fitted for the table. Generally speaking, the best sorts are the worst—eaten up by these insects; the natives, notwithstanding, greedily eat them, and they are also made into *amsatta*, which is made by exposing the expressed juice of the sarcocarp in a thin layer on a plate or piece of cloth to the sun until quite dry, when it is pulled off and folded and kept for use.

When carefully prepared and kept from damp, *amsatta* preserves all the flavour of the fresh mango for months. It is a wholesome preserve, and often given to the sick and invalid, as a good appetizer, and to promote digestion. Ripe mango stewed makes an excellent sub-acid dish, *ambal*.

Plantains and bananas.

The varieties commonly met with are *sapri*, *champá*, *chini-champá*, *martábán*, *rámkállá*, *kanyá bássi*, *maidna*, and *biché kala* or *kantulli*. The two last kinds, although the sweetest, are not much prized. Plantains are largely consumed, and eaten either alone or with rice and milk, much in the same way as mango.

Pine-apple (Ananas), Bromeli: ananas.

The pine-apple met with in the markets is for the most part imported from either the Dacca or Burrisal district. The bazar fruit is seldom so good as those raised in hot houses in Europe, but if removed from the plant when quite ripe, it is not to be despised. Those of a small compact size, smooth, round, and with large eyes, are the sweetest and best. It is in season in June, July, and August. The natives eat it sliced with a little salt or steeped in rose-water and sweetened. A stewed tart or *ambal* is also sometimes made.

Katal (Jackfruit), Artocarpus integrifolia.

This is another very common fruit, and the largest fruit perhaps known in the world. A large jack will often weigh over a maund. The edible part of the jack is the thick yellow fleshy pericarp enclosing a large ex-albuminous seed. A collection of these bodies, in fact, closely packed together on a stunted floral branch, and encased in a thick spiny leathery integument, constituting the entire fruit. The fruit has a peculiar strong smell about it, but is nevertheless highly approved, and accordingly largely consumed by its native admirers. The farinaceous seeds of the jack form a valuable culinary article in a native household, and when roasted, are not much unlike chestnuts in flavour.

Tut (Mulberry), Morus indicus.

This fruit comes in season soon after the cold weather, but seems to be little cared for.

Ata (Custard Apple), Anona squamosa, and Nona (Bull's-heart) Anona reticulata.

These two fruits are much like each other, having a round form, skin soft, and either squamous or comparatively even, and consist of a number of arillate seeds embedded in a concrete mass of soft whitish flesh resembling custard. The *ata* differs from *nona* by its tubercular appearance and the superior delicacy of its flavour.

Bél, Ægle marmelos.

This tree is a very common one, bearing a large, smooth, spheroidal fruit of the berry kind, with a hard rind. The flesh of the ripe *bél* is sweet, fragrant, and delicious. Its nutritive, astringent, and cathartic properties, are well known. The fruit is in season in the hot weather and early autumn. The preparations of *bél* are *bél para*, *bél* roasted on fire; *bél panna* or *shorbat*, ripe pulp made into a drink by mixing it with water, sugar, and also a little tamarind sometimes; and *bél morabha* or preserve, the unripe *bél* decocted, sliced, and then boiled and candied without the seeds.

The dried sliced unripe bél (*bél-sut*) is the form in which the native physician uses it for medicinal purposes. The gummy, viscid, transparent fluid round the seed in the green fruit resembling the white of eggs, is extensively employed by the native painter to dilute his colours.

Tál, Borassus flabelliformis.

This monarch of the palms, besides its other uses, affords a few alimentary articles which require a passing notice.

Ripe fruit, packa tál.—Common in July, August, and September, and abounding in a sweet yellowish pulp with a peculiar heavy aroma, much relished.

Tál Patali.—Expressed pulp mixed with lime water and scrapings of cocoanut flesh and then set to coagulate on a plate or mould of many patterns.

Tál Boras.—A kind of fritters made from the pulp saturated with flour or rice meal and fried in oil.

Tal-ran.—The soft semi-transparent kernel with the contained milk of the young fruit is so called, and is justly considered a great delicacy among the natives.

Tal-phopol.—Is the spongy overgrown cotyledon of the ripe nut at the period of germination. It is also good eating. No toddy is made from the tál in the district.

Khejur, Phoenix sylvestris.

This plant, which is so largely cultivated in the district for its juice, produces a very inferior fruit compared with its congener from the arid regions of Western Asia. The thin, dark-brown outer coating of flesh is sweet, and has the usual date flavour, but on account of its scantiness little cared for. The stone of this date is sometimes substituted for the betel-nut.

Guava—Pára, Am Sapri, Psidium pyriferum.

Too well known to require a lengthened notice. Only one variety is met with, white flesh and in size and shape like an ordinary pear. The fruit is in season in July and August

Rose-apple (Golap jam) and Star-apple (Jamrul), Eugenia jambos et Eugenia alba.

Both these trees are not unfrequently met with in native gardens; the one bearing a round white fruit with rose flavour, the other a conical fruit of the size of a small pear, but with a shining waxy appearance, and perfectly insipid in taste. Both come in season in the rains.

Water-melon-(Turbus), Cucumis citrellus, and Musk-melon (Phuti), Cucumis momordica.

These fruits are found in abundance during the rains and eaten greedily, although they are far from being very wholesome.

Peach, Amygdalis persica.

The peach is not altogether unknown in the district, but the fruit is generally watery and insipid, and hardly worth anything.

Lichu, Nephellium lichi.

Common in gardens. The fruit is well known.

Gáb, Embryopteris glutinifera.

The soft slimy arillus round the seeds of the ripe gáb is sometimes eaten by the poorer classes.

Bilati Gáb, Diospyros kaki.

The plant is occasionally met with. The fruit, which ripens in August, has a rich crimson down round it, and resembles in taste somewhat a plantain. In size it is like a pear, with generally three flattish stones in the centre.

Papeya (Peppey), Carica papaya.

Met everywhere. The fruit is too well known to require description.

Pomegranate (Darim), Punica granata.

The same remark also applies to this fruit.

Dephol, Artocarpus lacoocha.

Common in the district. The fruit, when ripe in the rains, is of a yellow colour, and about the size of a large mango, and generally somewhat distorted in shape. It is not at all unpleasant to eat, provided it is always perfectly ripe.

SUGARS, DATE AND CANE.

Date.

Furreedpore occupies a foremost place as a sugar-producing district, although in other respects its claims to commercial or agricultural importance are dubitable. The soil is not unfavorable to the growth of rice, but the cultivation of that grain, although of superior value as an article of food, has been in a manner greatly replaced by that of sugar, as being a more profitable and otherwise a richer crop of the two. The consequence is, that to meet the deficiency thus created by the competition, or, as it were, the encroachment of a more successful crop, the staff of life has largely to be imported, specially all the better sorts of it, from elsewhere or the bordering districts. Jute, safflower, oil-seeds, &c., have further encroached upon rice, but the sugar dominates over all in this respect—not only as having engaged the largest area of cultivation, but for its value as an article of export. Judging from the vast number of date plantations one meets with wherever he turns his eye or directs his foot (there is scarcely a house or hovel which cannot boast of a few date trees of its own, besides those at a distance), the extensive fields of sugarcane which alternate with or fill up the gaps left by the date, and the numerous sugar factories scattered over the district, it is not too much to say that nearly every inch of its soil either produces, or is capable of producing, this important raw material. In many villages the entire population is engaged in the manufacture or some dealings connected with it, while there is scarcely a single hamlet or rural community in which the better part of the laboring classes do not take a share directly or indirectly in its culture. The quantity of *gur* or raw sugar manufactured in the district is something considerable, and can, at the lowest estimate, hardly fall short of three or four lakhs of maunds as the average produce of a year for the whole district. The sugar produced in the district is either from the cane, *Saccharum officinarum*, or the date, *Phoenix sylvestris*.

Cane.

Two varieties are grown in the district, viz. a dark purple kind, called *kajole*, and a yellowish white species, known as *dhol sundor* or *sada kusar* or *uuck*. No attempt seems to have as yet been made to introduce any of the superior varieties of cane, although it is doubtful if any innovation, either as regards the old plant or the present modes of culture, will ever prove acceptable to the ryot, who generally being a person of no great capital of his own, prefers a tolerably fair and certain return for his little outlay with as little trouble to himself as possible, to large profits requiring considerable pecuniary investments, which they can but ill afford, and many risks, which he thinks it wiser not to encounter at all. In the cultivation of sugarcane little or no manure is used, excepting a few handfuls of cattle dung thrown here and there during the preceding rains, when the land is left to fallow; and if the yield is a good one, which it generally is, it is more owing to the rotation of the crop and the careful ploughing and pulverizing of the soil, in which the ryot is very particular, before the young shoots are put in the ground, than to any superiority of his agricultural skill or his method of culture. During the growth of the plant the only care required is to tie or roll up from time to time the growing stalks with their own leaves, so that they may not be uprooted by storms, and sometimes to pick out a species of larvæ, which drills into the young cane, causing extensive havoc afterwards if not thus timely guarded against. The manner of cutting the cane, extracting the juice, and the rude forms of press used in this country from time immemorial, has been well described by Dr. Ure in his Dictionary of Arts and Manufactures, to which reference should be made for this part of the subject, as it would apply without any variation to the method adopted in the district. The two forms of sugar mills used here, viz. a vertical and horizontal form of screws, will be best illustrated by models sent.

Process of boiling the juice.

The boiling apparatus, consisting of a number of earthen pots, each in the shape of an inverted cone, instead of being placed in an extended line, as in Dr. Ure's diagram, is arranged in a circle over a fire-place, which is a cavity of considerable dimensions dug in the ground and covered over with a clay roof or ceiling, having as many holes as there are pots to be inserted. The juice is never poured or spooned out from one vessel to another, as shown in Dr. Ure's book; such a course or shift being, by the modified construction of the fire-place quite unnecessary, as all the boilers here, from their circular disposition, receive heat equally. The fuel used is the dried leaves and refuse of the plant after the juice has been extracted. It is a well known fact that the manufacturers of sugar generally prefer the pot-extract to the *gur* in the cake form; this appears to be done more from a regard to the process they adopt for refining, as well as from consideration of the time of the year during which that process is effected than any other reasons. See further on, when we come to the process of refinement, which is the same in both the varieties of the cane and date sugar.

Mode of extraction of the date-juice, or tapping the tree, as it is called.

Tapping is the operation by which the juice is obtained from the date-tree. It is done at the top of the trunk, a little below the part called the growing point (*máthi*), by making a few longitudinal incisions and joining them with a transverse one at their inferior termination in the shape of a crescent, in the centre of which a piece of slit *kanchi*, branch of a bamboo, is fixed to serve as a drain or spout for the liquid to trickle down into a vessel or receiver placed below it. If it be not the first operation, that side of the plant is selected which is opposite that in which the cutting was done in the previous year. When a tree is prepared for extracting the juice, or *rash* as it is called, the cut surface resembles as nearly as possible the smooth convex plane of a horse's hoof. This is, however, worn out into an irregular concavity in the course of the season by the shaving it has to undergo either every other day or consecutively for three days, alternating with a rest of as many days, so as to present a fresh surface at each time, which is essential to a renewal of the flow. The exudation takes place both during the day and night for 24 hours after each shaving; but latter is the time for collecting the juice, not only on account of its being then the most copious, but also for its containing more saccharine matter, especially the crystalizing element. The liquid gathered in the daytime is weak in sugar, which is boiled down into an inferior kind of *chita*, used principally in the preparation of cake or *huka* tobacco. The operation of tapping is only performed during the cold weather, and the yield is according to the intensity of cold. The quantity and quality of the juice will, however, vary greatly according to the age or the health of the plant, the length of rest given, and the various meteorological changes which affect the temperature of the soil and atmosphere. A strong healthy tree will yield as much as twelve seers of juice, if not more, throughout the season daily, while weakly, aged, and very young plants, would hardly give two or three seers daily in the same time. The average yield may be set down to about five seers per tree daily. Rest is essential to a generous yield of the *rash*. In this part of the district they cut for three days in succession, allow three days' rest, and then commence again on the seventh day, and so on; and it is observed that the juice obtained on the first day after a rest is not only the largest in quantity, but of the best quality, and that the quality gradually grows weaker on each succeeding day, until by a further repose the tree is allowed to recruit itself again.

The state of the weather will likewise affect the production of the date: in a bright, clear day, when the cold is also intense, the exudation is both copious and rich; in cloudy weather the same is equally abundant, but less sweet: and if there be wet or rain, it is perhaps still more abundant, but almost tasteless. The same decrease of the saccharine principle is also observed as the cold is replaced by the higher temperatures of the spring and summer. Heat is not only injurious to the formation of sugar in the living tree, but seems also to interfere in some manner with its subsequent tendency to conversion into the granular state when removed from the sphere of life. It is thus we find that the juice when boiled over a strong fire loses its power of crystalization to a great extent. The deteriorating effect of heat is further recognized in the retrogressive changes that occur in the prepared gur while refining it by re-boiling, which, if carried on too long, may entirely convert it into molasses or uncrystallized sugar. The transformation of sugar from its granular to the syrupy state belongs to the same order of changes.

Process of refining.

The process of refining sugar is the same, whether it is obtained from the juice of the date or of the cane. As has been observed, the gur manufactured from the date or cane is made in two forms: either as hard cakes, known as *patali*, or cake extract or of the consistency of honey, which being preserved in earthen pots, is known as *pot* or *huri* extract. Sometimes the hard kind is also kept in pots to secure it more successfully against damp. The cake extract cannot be kept long, and therefore is the first made use of in making sugar. In a humid climate like that of Eastern Bengal, a part of it is sure to be damaged if allowed to remain in this state during the rains. The pot extract, on the contrary, is capable of preservation as long as it is desirable. There is another advantage with the gur made in the form of pot extract, viz., on account of less heat being required in its preparation, it produces proportionally a larger quantity of granular sugar than obtains with the other variety, the solid particles separating themselves into a large crystalline mass at the bottom of the vessel in which the extract is preserved. All that is now necessary to do, is to place the solid mass in stout gunny or sackcloth bags and squeeze out the remaining molasses, partly by twisting and tightening the mouths of the bags, and partly by laying weights upon them for additional pressure. The article thus produced is of a brownish colour, and usually known as *katcha* or cold sugar, in contradistinction to a like variety of the raw product prepared by the application of heat. By far the largest quantity of sugar, however, in the district is manufactured in a different way. The process, rather a cumbersome one, is as follows. The gur, generally the cake extract, is at first boiled with a certain proportion of water in a large iron vessel or *karai*, a quantity of diluted milk being added from

time to time to separate the impurities, which are skimmed off as soon as they form on the surface. When no more skim appears, the thickened liquor is poured into a number of circular earthen pots or strainers, made wide at the top and pointed below, with a hole in the centre, popularly called *bharnis*, and thus left for two or three days in the open air to cool. It is then removed to the refining house, where the final separation of the solid crystalline portion from the treacle is effected. The straining pots are generally arranged in rows on a bamboo frame at a certain height from the ground, and earthen pitchers are placed under each to receive the molasses as it slowly drains from the refining pot above. To complete the arrangement, as well as to quicken the operation, fresh moist leaves of a water weed called *patta ghas* or *patta shewálla* (a species of *Valisnaria*), are now placed on the top of the refining pot, and as soon as a layer of sugar from 1 to 2 inches thick is formed at the top, it is removed by scraping with the knife, fresh *patta ghas* being laid on the remainder and the same tedious process is repeated several times until the entire quantity of sugar is made. The native confectioner makes extensive use of this sugar for the purposes of his art; but before it is fit for use, it has to be clarified again by further boiling with the addition of a solution of milk as in the last process. When this is allowed to cool, it forms a hard crust, which requires to be broken and pounded before it can be employed; hence the name of *patta sugar* applied to it. The molasses is employed for preparing *huka* tobacco, inferior sorts of *murkis*, *moahs*, *chaktis*, &c. (see Sweetmeats), and the rest is sold for use in the distillation for making country rum. There are two other kinds of *gur* known in the district, I might say throughout Lower Bengal, in much request for ordinary home consumption, viz. the *patali gur* and the *poira gur*; the former is simply the cake extract made in the form of flakes or plates of variable thickness; on the other hand, the latter is a pot extract of the date, the extract being made with slower heat, and a little thinner than usual, and with the best and richest juice that can be procured.

Madhu—Honey.

This is perhaps the proper place to offer a few words regarding honey, which is occasionally used in the district either as an article of food or as a pharmaceutical agent. It would be needless to enter into the history of the insect (*Aphis mellifica*) that produces it, whence it is originally derived, how subsequently it is elaborated, &c. Suffice it, however, to say that two varieties of bee exist in these parts, distinguished by one being smaller sized than the other, and that it is the neuters which collect this useful substance. The small bee is very rare, and only now and then to be found in some gardens. It generally produces the best kinds of honey, and it is believed that *padma madhu*, which is derived from the melliferous disks of the water-lily, so much prized by the natives, is collected by this bee. The ordinary kind of *madhu* of the district, however, obtained from the common bee is of a very inferior quality, looking more like treacle, and being sometimes bitterish and nauseous, is positively useless. *Madhu* is much employed as an *unupan*, or vehicle for administering native medicines, especially those in the pill form.

MUCILAGINOUS ALIMENTS.

Under this class are included all those vegetable substances employed as food which hold mucilage or gum, or in their further metamorphosed forms pectino or pectic acid (vegetable jelly), as predominant principle in their composition. Hence to this class will belong all greens, pot herbs, or the garden vegetables properly so called; and as such, they play no insignificant a part in the nourishment of man in all countries, more especially in the tropics, where the inhabitants have to subsist for the most part on a vegetable dietary. These aliments are naturally so numerous, that for convenience they would be best considered according to the part or parts of plants which usually furnish them, such as leaves and tender shoots of plants, branches and stems, flower and flower stalks, fruits, roots, and rhizomes and bulbs.

Leaves and tender shoots of plants—sags and duggás

These constitute a very numerous class of pot herbs or greens among the natives. Everything green and tender, provided it is not positively noxious or fetid, is in fact, I may say, so used. Those most commonly employed, however, in the district are as follows:—Three varieties of *natos* (নটস শাক)—*Amaranthus lividus*, *A. prostratus*, and *A. polygamus*; the *kalmisag* (কলমি শাক), *Convolvulus reptans*; *matarsag* (মটার শাক), *Pisum sativum*; *kachusag* (কচু শাক), *Arum colocasia*; *mula* (মূল), *Raphanus sativus*; *palangrag* (পালঙ্গ শাক), *Beta bengalensis*; *puinsag* (পুই শাক), *Basella lucida*; *laodogga* (লাউ ডগ), *Lagenaria vulgaris*; *kumradagga* (কুমড়া ডগ), *Cucurbita pepo*; *shamla* (শামলা লাল), petioles of water-lily; *sajinasag* (সাজিনা শাক), *Hyperanthera moringa*; *susnisag* (সুসনি শাক), *Marsilia dentata*; *mathisag* (মেথী শাক), *Nigonella fœnum gœcum*; *sulfisag* (শুলফি শাক), *Anethum sowa*; *patsag* (পাট শাক), *Corchorus olitorius*; *oldanta* (ওল ডাট), tender shoots of *Arum campanulatum*, &c.

These sags are eaten either boiled, fried, *ghanta*, or *chhechki*.—See Native Cooking.

Branches and stems.

The juicy succulent branches of some of the plants in the preceding group are often made use of as culinary objects. They usually form the basis of most *churchoris*.

Flowers and flower stalks.

The flowers of the *sajna*, and those of the gourd and pumpkin, are eaten—the former made into *ghanta*, and the two fried and put in curries. The unexpanded spadix of the plantain and its long tender inclosed stalk, *mocha and thor*, are likewise employed in a similar manner. *Mocha* is by no means an unwholesome or unsavoury vegetable if properly cooked.

FRUITS.

The following list includes all fruits employed for culinary purposes :—

- Mitkumra* (মিটুমরা কুমড়া)—*Pumkin*.
- Lau* (লাউ), *kadu* (কাডু)—*Lagenaria vulgaris*.
- Kankur* (কাঁকড়)—*Cucumis momordica*.
- Khira* (খিরা), *sossa* (সসা)—*Cucumber*.
- Dhundul* (ধুঁদুল)—*Luffa pentandra*.
- Jhinga* (ঝিঞ্জা)—*Luffa acutangula*.
- Kakrol* (কাকরোল)—*Luffa racemosa*.
- Srichundon* (স্রীচন্দন), *chichinga* (চিচিংগা)—*Icosanthus anguinia*.
- Patal* (পটল)—*Luffa diaca*.
- Dharosh* (ডারোশ)—*Hibiscus esculentus*
- Bygun* (বেগুন) *Solanum melongena*.
- Katch Kala* (কঁচকলা)—*Green plantains*.
- Dumur* (ডুমুর)—*Ficus carica*.
- Papeya* (পেঁপে)—*Carica papeya*.
- Etchor* (এঁচড়া)—*Green jack fruit*.
- Sajna danti* (সাজনে ডাঁটা)—*Hyperanthera moringa*.

As the report is getting voluminous, a detailed account of these fruits may be omitted.

Roots and rhizomes.

The raddish, the tender roots of palungsag, the common and the sweet potato, the zamg, the oil, the munkachu, and the guri and gatch kachu (*Arum colocasia* and *Arum esculenta*), may be mentioned as belonging to this division of mucilaginous foods.

Bulbs.

The bulbs in common use are the onion (*Allium ascalonicum*) and garlic (*Allium sativa*). They are extensively cultivated and consumed. I need scarcely say that the Hindus are strictly prohibited to eat onions.

ACIDULOUS ALIMENTS.

Man has an instinctive appetite for acid aliments, and it seems this innate longing is in proportion to the best of the climate in which he dwells. The principal acid used in the districts are the *tamarind*, the *karamcha*, the *mastha*, the *kul*, the *green mango*, the *challa*, the *amra*, the *katbel*, the *sore*, the *noari*, the *nimbu*, and *vinegar*.

Tamarind (tentul)—*Tarmarindus indicus*.

The natives of the district are not much used to acid things, but still, when requiring an acid, it is the tamarind which they usually have recourse to. It forms the basis of most of their *ambals* (acid curries), and it is this acid also they prefer to all others in making their various acidulous sherbats, pickles, and *chatnis*. Tamarind is slightly laxative: hence it is of use when mild purgatives are required. Its sherbats are the most cooling and agreeable in inflammation and febrile affections, and prove not the less grateful as an ordinary drink in the hot weather.

Kuramcha (করম্‌চা)—*Carissa carandas*.

The plant is not uncommon, and its red acid fruits are well known but seldom much made use of. The same remark applies to *kamranga* (কামরাঙ্গা) *Averrhoa carambola*, the Indian sorrels, *chuka palung* (চুকপালঙ্গ) and *amrul*, *Rumex vesicarius* and *Oxalis corniculata*, and *noari* (নায়াঁড়) *Phyllanthus charamella*.

Mátha (মথা)—*Hibiscus sabdariffa*.

The whole plant is mucilaginous and pleasantly acid. It is, however, the red fleshy persistent calyces which are used. A few of these put in curries will suffice to give them an agreeable acid taste.

Kul (কুল)—*Zizyphus jujuba*.

This tree is very common, and yields a round sub-acid cherry-like fruit, which is extensively used. In the green state the native plum is not wholesome, but the same objection does not apply when the fruit is ripe. It is eaten either raw, sometimes with a little salt, or stewed as an ambal. The *kulchur* (কুলচুর), a preserve of the ripe fruit prepared by crushing and salting and then drying it in the sun, is in considerable request in consequence of its delicious flavour and as an appetizer. In this form it may be used as a most wholesome acid. The variety of native plum known as *narikel kul*, a long sweetish fruit, is also met with here and there.

Green mango.

In the green state mango is extensively employed for its acid qualities. Large quantities of the fruit are eaten raw or in a stewed dish, and a still larger quantity is preserved for future use in the following forms:—

Amsi (আমসী).

This is simply the flesh of the green mango cut in slips and dried in the sun previously sprinkled with a little salt.

Kasundi (কাসুন্দি).

This is the celebrated mango chatni or acid preserve of Bengal, and is made by mixing mashed unripe mango with powdered turmeric and mustard-seed and salt, and sometimes also a little tamarind. The process of making it is a very tedious one, and takes days and weeks to finish it; the quality always depending on the care and punctuality with which the mixture is made at its different stages, as the ingredients have to be added in varying proportions at each stage, and the least error committed at one will interfere with the success of the whole preparation.

Tél Am (তেল আম).

This, as the name implies, is mango kept steeped in oil; that of mustard being always used. Previous to immersion the unripe mango is slit up on one side to remove the young kernel, and the void thus made is filled up with a roughly ground paste consisting of ohillies, turmeric, ajwan, mauri, kalijira, methi, and salt.

Chalta (চালতা)—*Dillenia indica*.

Amra (আমরা)—*Spondias mangifera*.

Katbél (কতবেল)—*Feronia elephanta*

These trees are not very common in the district. In the chalta the large persistent sepals are the parts made use of, both in the green and ripe state. The ripe sepals are sometimes ground down and made into a fairly palatable preserve with gur or sugar. The amra is not an unpleasant acid. *Katbél* is foetid, but makes a good chatni with other ingredients.

Nebu (নেবু).

Nebu is a general term applied to all fruits of the order aurantiacæ: hence citrons, lemons, the shaddock, and orange, are all nebus. The varieties indigenous to the district are the kagchi and pati nebus, the jungle nebu, and the batabi nebu (pumpkinose). They all owe their acidity to citric acid contained in their pulp. The first two varieties are much resorted to either for making sherbats with sugar or salt, or to impart an agreeable acid taste to rice. The usual way to use them is to cut the nebu into three slices vertically, to admit of taking out the central tough placenta, and then to squeeze the juice between the fingers into the sherbat or the dish of rice. The juice is cooling, stomachic, and powerfully antiscorbutic. The pumpkinose, when ripe, contains a cooling sub-acid juice, used more as a dessert than lime.

Vinegar.

Not much used in the district. The country vinegar is made from either the cane or date juice—the cane is the best—by exposing it to the sun in a glazed or impervious vessel well covered up at the top by a piece of cloth, sometimes adding a little charred barley or gram to give the usual color, until it gets quite sour by acetous fermentation, which soon sets in.

PICROUS OR BITTER ALIMENTS.

There are many bitter substances in common use among mankind, which either possess nourishing properties in themselves, or, when added to other esculents, render them

thereby more agreeable and adapted for food than before. They should therefore require a separate consideration. The bitter substances used as food in the district are the following:—

Karela (করলা), *pálá* (পলতা), *nim* (নীম), *nalte* (নালত), *betdagga* (বেতডগা), and *helanch or hincha* (হেলান্চ ও হিন্চা).

Karela (করলা)—*Luffa amara vel momordica charantia*.

This cucurbitaceous plant is largely cultivated for its succulent bitter fruit, which is much consumed by the people. Two varieties are known; one egg-shaped from one to two inches long, the other from three to four inches long, and both tapering at the ends and covered with little tubercles. They are most common during the early rains. Eaten fried, stewed, and curried.

Palta (পলতা)—*Trichosanthes diæca*.

The young leaves and the tender shoots and branches of the plant are used under this name. They are bitter and slightly alimentary, and supposed to possess antibilious properties. The palta juice, or broth prepared from the leaves, is an indispensable article of diet in the native sick room, and often the first food allowed to the sick and convalescents.

Nalte (নালত), or *tiktapát* (তিকাটপাত)

These are the dried leaves of the bitter jute plant *Corchorus fuscus*, much used either as cold infusion alone as a bitter stomachic, like chiretta, or to impart a pleasant bitter flavour to some native curries. The nalte contains an appreciable quantity of mucilage combined with its peculiar bitter, and in this respect it might serve as very fair native substitute for the well known Ceylon moss.

Helanch (হেলান্চ).

The tender terminal branches of this plant are extensively eaten as a bitter sag. It is said to possess strong antibilious properties.

Nimpatta (নীমপাতা)—*Melia azadirachta*.

The young leaves of the nim are much prized for their giving an agreeable bitter aroma to some native dishes. As a preliminary to their use for this purpose, they must be fried crisp in oil and then put in curries.

The Bet dagga (বেত ডগা)—*Calamus rotang*.

The tender growing points or tops of the bet are likewise sometimes employed as other substances of this class.

CONDIMENTARY ALIMENTS.

These are important accessories to our other aliments. I may here remark that none of the purely warm or aromatic condiments, or what may be properly called the noble species, do not grow in the district, such as cardamoms, cinnamon, nutmeg, &c. Of the pungent class, ginger and chillies may be mentioned as those locally grown and extensively in use. They require no further description. There are three chillies known in the district,—see catalogue of the foetid condiments; a large number are raised in the district, and it will suffice if I simply enumerate them here and send a specimen of each kind. They are as follow:—

Kalajira (কাল জিরা) — *Nigella sativa*.

Methi (মেথী) — *Trigonella foenum græcum*.

Haldi or Halud (হালদি) — *Curcuma longa*.

Dhania (ধানিরা) — *Coriandum sativum*.

Sowa (সোয়া) — *Anethum sowa*.

Jwan (জোয়া) — *Ptychotis ajwan*.

Radhuni (রাধুনি) — *Ptychotis involucrata*.

Mouri (মৌরি) — *Pimpinella anisum*.

NATIVE COOKING AS PRACTISED GENERALLY IN BÉNGAL.

Names of dishes and mode of preparing them.

1. *Siddha* (সিদ্ধা)।

To boil, boiling, or the products of boiling. A. siddha puli, siddha chal, &c.

2. (*Bhat ranna* ভাত রান্না).

To boil rice, or boiling of rice. There is an art in doing this, if I may so express myself and it is only those who have often boiled rice who fully understand the process. The secrets of the process are—first, the proper regulation of the heat; second, the proportioning of the water required to boil (the usual proportion is about three bulks of water to one of

rice if the grain is new, and four to one of rice if old) ; and third, the determination of the exact time when the operation is to cease. This is determined when there is no longer any central hardness in the boiling grain, or *maz*, as it is called.

Bhâte bhât (ভাতে ভাত).

This means boiling of some other article of food with rice in the same pot or vessel at the same time. This dish is a very convenient one, forming as it does a complete meal by itself, and is resorted to when the object is to dress food as quickly as possible. The rice is eaten without further preparation, but the other articles require to be seasoned with oil and salt.

Ghanta (ঘণ্টা).

This is a dish in which, as the name implies, a great deal of stirring the dish with a stick (*kati*)—and stirring it round and round in the pot—is required while cooking. It is made generally of greens sliced and cut up in very small pieces with the addition of some common spices (turmeric, chillies, ground mustard, &c.), sometimes of few *boris*. Mustard-oil and salt are of course also added, as in the generality of native dishes. The best *ghantas* are those made of the *mocha* (inflorescence of plantains), *palang sag* (*Beta bengalensis*), and *katchu sag* (petioles of *Arum calocassia*).

Sarsari (শর্শরী).

This consists in frying to a soft consistency any *sag* or tender part of vegetables in oil, and when sufficiently done, adding a few mustard seed in the hot oil in the pot to impart to the dish its peculiar empyreuma.

Bhujâ (ভাজা).

Frying in general. As a preliminary, the substance to be fried is rubbed over with a little ground turmeric and salt.

Pora (পোড়া).

Singeing and roasting over fire in general. Potatoes, brinjals, and many other roots, tubers, fruits, and nuts, are often thus prepared. Sometimes the substance to be roasted is previously enclosed in plantain and other leaves.

Danlâ (ডাললা).

Danla is properly speaking a vegetable stew with the gravy rather thick, made usually of farinaceous, fleshy, and mucilaginous esculents. Rice-meal made into a paste, called *pituli*, is generally used to give the required consistency to the dish. More than one vegetable is required to make this dish, and ghee is often substituted for mustard-oil to give it increased flavour. The best *danlas* are those of potato, greens, peas, green jack fruit, and cauliflowers.

Charchari (চর্চারী).

May be described as a vegetable stew without any gravy. It is generally made pungent, and fish is sometimes added.

Chhenchki (চঁচঁকী).

Is more like a *charchari*, but usually a greater medley of the two. It is chiefly prepared with vegetables, and generally with fewer spices.

Dal (ডাল).

This constitutes a most essential part of the diet of a native. What is bread to meat and butter to bread in Europe, the same may be said of *dal* to a Bengali's rice. It is in other respects, as it were, his great standing dish, and without it his meal can be hardly considered complete. It consists of the detached cotyledons freed from husk of the bean, pea, and other pulses, boiled down with spices, chiefly turmeric, chillies, and black pepper, oil or ghee, and salt, to the consistence of pea soup, with this difference that the cotyledons are only partially dissolved. The quantity of water to be used for boiling is regulated according to the nature of the pulse and the consistency required. The word "*dal*" is also applied to the split seeds in the dry uncooked state. It is a highly nourishing dish, and, containing a large amount of azotized material, cannot but supply in a great measure any deficiency of that element in the rice, which constitutes the staff of life of the Bengali.

Chhanchra (চঁচঁড়া).

This is a sort of hodge-podge prepared only on the occasion of a great feast or *Juggi* among the Hindus with the odds and ends of various vegetables and fish, such as the succulent stalks and soft peels of the former, and the liver, air-bladder, and gills of the latter, rendered hot with plenty of common spices. In consistence it is made more like a *ghanta*.

Khichri (খিচুড়ি).

This, like *bhate bhat*, is an extempore, but a very rich, dish. It is made by boiling rice and dal together with various spices, salt, and clarified butter. The dals that make best khichries are the *arhar*, *mug* and *musari* (মুগ ও মুশারী).

Jhol (জল).

Is a stew-like preparation, with plenty of gravy in it. This is one of the most favourite dishes with the natives, and is either made with vegetables and fish, separately or both together. Usually the best vegetables, fish, and spices, are selected for jhol.

Sukta (সুকতা).

Is a vegetable stew rendered bitter by the addition of some bitter herb, fruit, or leaves. The *nim*, the bitter jute leaves, and *patta*, are usually employed for this purpose.

Amba (আম্বা).

This is simply an acid stew or jhol, according to consistency. The acid most commonly employed is either the tamarind or green mango, fresh or in the dried state. See *Amra* (আম্রা), or *tider Acid Food*.

These are *khir* or *khir* (খির).

Is a sort of frumenty prepared with rice boiled in milk and sweetened and aromatized with sugar, camphor, and cardamoms.

Ogra (ওগড়া).

Is a convalescent or sick diet prepared by boiling fine old rice and some light dal together like a *khichri*, with a few spices, in the proportion of one part of the former and four of the latter. Mug or masur are usually preferred. Sometimes khai is substituted for rice as a still lighter diet.

Jucc.

A light broth made with vegetables or meat for the sick. Young fish is also used for the purpose. Sometimes a bitter is added to render the broth slightly tonic and stomachic at the same time.

Polao (পলাও).

Polao is prepared by boiling rice in a decoction of meat, previously made, to which is added a quantity of solid meat and as much of onion, ginger, blackpepper, and other spices, such as cardamoms, cloves, &c., as would impart a rich flavour to the dish, and when the rice and meat have become somewhat tender, the whole is then properly baked on a slow charcoal fire with the addition of enough ghee as will give it a rich appearance.

Kalia (কালী).

This dish is dressed in various ways, which in fact depend more on the choice or means of the party than any regular process. Generally it is prepared like a curry. To make an ordinary *kalia*, the meat is at first cut up into small pieces, to which is added a quantity of curry ingredients, consisting of turmeric, ginger, chillies, garlic, and onion, well ground with as much water as will make each ingredient into a thick paste. These and the meat having been well mixed together with some salt, are put on the fire in a pan with some ghee or oil, previously heated, in the proportion of a chittack to a pound of meat, and the whole is then kept simmering on the fire, sprinkling occasionally the inner parts of the pan with water to prevent the ingredients from being burnt. This is continued till the meat is properly seasoned, and then a quantity of either vegetables and water, or only water, is added, but enough so as to make the meat tender and leave a quantity of gravy besides. Some prefer it without gravy, in which case the *kalia* is kept longer on the fire to dissipate all the water, when it is called *dopayaja* or *bhuni*.

Kurma (কুর্মা).

Kurma is prepared by cutting up the meat into pieces of a quarter seer each, and having sprinkled it with some salt, is then boiled in a little water to soften it, with the addition of some ginger, garlic, and other spices, but no turmeric or chillies. When the water has nearly evaporated, a quantity of dahi or butter-milk is put in, and the whole is then fried in plenty of ghee until the meat receives a fine brown color. It is now put by for use. In this form it will keep for several days, specially in the cold weather.

Koptas (কপ্তাস).

Koptas are made by mincing meat very fine and then chopping it by means of a blunt chopper, so as to beat the meat almost into a paste, and then with the addition of some salt, pepper, and the juice of garlic, ginger, and onion, sliced, the whole is well kneaded and formed into balls, and afterwards fried brown in ghee.

Kati kabab (কাটিকবাব).

This is made by cutting up the meat, freed from bones, into small pieces, and after seasoning it for a certain time with some salt and the juice of onion, ginger, and garlic (a little turmeric is added sometimes), the pieces are strung into by thin sticks (*katis*) or spits made of bamboo from about 9 to 15 inches long, and roasted on a charcoal fire, bathing them occasionally with ghee and butter-milk.

SWEETMEATS, OR FESTIVE ALIMENTS.

Including cakes, pastries, and similar compounds.

They may be classified as follows:—

Class I.—Simple festive aliments, or those made of single components.

Order A.—Those made of starch or starchy bodies.

Species 1.—Rice starch:

Chalbhaja (চালভাজা)
and its *chhatú* (ছাতু).

Muri (মুড়ি).

Khai and its *chhatú* (খই ও ছাতু).

Chira and its *chhatú* (চিড়ে ও ছাতু).

Aske (আসকে).

Chilúí (চিলুই).

Chusi (চুশি).

Kaón chalbhaja and *chhatú*.

Species 2.—Wheaten starch:

Ruti, hand-made bread, *sáyái*, native (সায়ই).

Vermicelli or macaroni.

Species 3.—Barley starch:

Chattú (ছাতু).

Species 4.—Dál starch:

Chhóla bhaja (ছোলাভাজা).

„ *chhattú* („ ছাতু).

Mater bhaja (মটরভাজা).

„ *chhatú* („ ছাতু).

Sarúchákli (সকচাকলী).

Order B.—Those made of gur or sugar.

Species—

Patali (পাটালি).

Poira (পয়রা).

Chini or common sugar (চিনি).

Ola (অলা).

Misri or crystalized sugar (মিসরী).

Batasa or clown sugar (বাতাশা).

Pheñi-batasa or foamed sugar (ফেনী
বাতাশা).

Mats (মট) or moulded sugar.

Birkhundi (বিরখুন্ডী) or pulled sugar.

Varieties of kadma (কদমা).

Kantal-kushi (কঁটালকুশী).

Poincho (পইচি).

Elaohi-dana (এলাচদানা) cardamom
drops.

Order C.—Those made of cocoanut.

Neyapatti (নেয়াপাতি).

Narikel-kora (নারিকেলকোরা).

„ ful or flower.

Order D.—Preparations of milk.

Species—

Sár (সর).

Khír (খীর).

Khirsá (খীরশা).

Pat-khirsá (পাত খীরশা).

Chhánná (ছানা).

Dáhi (দধি).

Class II.—Compound festive aliments of binary combination.

Order A.—Those made of sugar and starch, or starchy bodies.

Species 1.—^{Paraman}

Murkis (মুড়কী).

Chini-múrki (চিনি মুড়কী).

Common do.

Nakul (নকুল).

Species 2.—Moahs (মোহা).

Moah of khai (খই).

„ muri (মুড়ি).

„ cheera (চিড়ে).

„ kaon (কাওন).

„ khai (খই).

Species 3.—*Chaktis* (চাকতি).

Chakti of muri (মুড়ির চাকতি).

„ chira (চিড়ের „).

„ chal-bhaja (চালভাজা).

„ matár (মটরের চাকতি).

„ chholá (চেলা).

„ póst-dáná (পোস্তদানা).

Species 4.—Laddus (লাড়ু).

Laddus of mater (মটর লাড়ু).

„ mug (মুগ „).

„ khai (খই „).

Order B.—Sugar with cocoanut and other oily bodies.

Species—Chhyáni (ছাঁই).

- Narikel narú (নারিকেল নাড়ু).
 „ chira (চিড়র „).
 „ zira (জিরর „).
 „ ful.
 Raskara (রসকরা).
 Reuri (রেওড়ী).
 Til-birkhandi (তিল বিরখণ্ডী).
 Matka (মটকা).
 Til-narú (তিলনাড়ু).
 Narikel-taakti (নারিকেল তাক্তী).
 „ barfi („ বরফী).
 Ganga jal (গঙ্গা).

Order C.—Sugar with khir.

Species—

- Khír óhã, ñve siók room. and óften
 Na. „ fíchis (খীর ছাঁচ).
 These Taaktis („ তাক্তী).
 „ Narús („ নাড়ু).
 „ Pulis („ পুলি).
 „ Barfis („ বরফী).
 „ Sandeshes („ সন্দেশ).

Order D.—Sugar with khír.

Species—

- Sandesh or mandah.
 Golla (গোলা).
 Puli (পুলি).
 Chanoh (ছাঁচ).
 Atta (আত).
 Golabjam (গোলাবজাম).
 Mundi (মুণ্ড).
 Kanchagolla (কঁচাগোলা).
 Ohhana-murki (ছাঁনার মুড়কী).
 Gúr-sandesh (গুড়ের সন্দেশ).

Order E.—Starch with ghee or oil.

Species—

- Luchi (লুচি).
 Puri (পুরি).
 Pappor (পাপর).
 Phuluri (ফুলারি).
 Chanachur, &c. (চনাচুর).

Class III.—Compound festive aliments of ternary
 or quaternary combination.

Order A.—Sugar with rice starch and cocoanut.

Species—

- Siddha puli (সিদ্ধ পুলি).
 Bhaja puli of rice (ভাজা পুলি).
 „ „ of chira (চিড়ের পুলি).
 „ „ of sweet potato (আলুর পুলি).
 „ „ of mug and rice (মুগ ও চাল).

Order B.—Wheaten or dal starch, ghee, and plenty of spices.

Species—

- Kachuris (খিচড়ি).
 Dal puris (দাল পুরি).
 Nimki (নীমকী).

Order C.—Sugar, channa, besam, or rice starch.

Species—

- Ohhanna bara (ছাঁনারড়া).
 Panitua (পানিতোরা).
 Lalmohan, &c., (লালমোহন).

Order D.—Sugar, ghee, shár or khír.

Species—

- Sharbhaja (শরভাজা).
 Mattichur of khír (মোতীচুর).
 Bondey, &c. (বন্দেয়).

Order E.—Sugar, cocoanut, ghee, and starch.

Species—

- Chandra kait (চন্দ্রকাইত).

Order F.—Sugar, wheaten starch, besám and ghee.

Species—

- Gajás (গজা).
 Khajas (খাজা).
 Jilepi (জিলেপী).
 Amirti (অমর্তী).
 Matichur (মোতীচুর).
 Packhána (পাকার).
 Bundiyas (বুন্দিয়া).
 Jhuris (ঝুরি).
 Mohanbhog (মোহনভোগ).
 Rashkará (রসকরা).

Order G.—Sugar or sweet pulpy fruits, starch and ghee or oil.

Species—

- Malpuah.
 Baras of kálá.
 „ of táI, &c.

Order H.—Sugar, ghee, and pulp or flesh or certain fruits.

Species—

- All morabbas or candied fruits.

Order I.—Milk, sugar, and starchy bodies.

Species—

- Paramannás of rice.
 „ of chira.
 „ of sago.
 „ of suji.
 „ of chhana, &c.

Order J.—Rice meal, gur, cocoanut, flesh, til-seed, and mustard-oil.

Species—

- Ananda naru (আনন্দ নাড়ু).

Sweetmeats, comprehending as they do a great many substances and their preparations, do not necessarily fall within the scope of the present report. They do not constitute the ordinary food of man; but still as they are more or less used by all classes of the people, and they have not so much as a common generic name to distinguish them properly from other articles of dietary, I propose to describe them under the more expressive appellation of festive aliments, as it is on occasions of festivity, pleasure, and merriment that they are so generally and extensively consumed. A detailed account of all the cakes, pastries, and sweetmeats, would occupy more space than we can devote to the subject at present. However, by the arrangement we have introduced, the whole subject will be brought under one view, and it will be easily seen what substances principally enter into their composition, the names by which they are known, how far they resemble each other, wherein any differences exist, and in fact every essential point which it may be necessary to learn regarding these bodies, will at once be brought before the eye. In the enumeration a few names may have been omitted, but that does not render the classification defective. I shall here glance over some of the most common preparations. It will be observed that the chief ingredients in native confectionery are sugar, rice, wheaten and dal starch—the last of which is called *bosam*—ghee, and other preparations of milk and cocoanut. The cocoanut sweetmeats and pastries are all more or less indigestible, and the same may be said of other compounds in which ghee and oil enter largely as one of their components.

CLASS I.—SIMPLE FESTIVE ALIMENTS, OR THOSE MADE OF SINGLE COMPONENTS.

Order A.—Those made of starch or starchy bodies :

Species 1.—Most of these articles have already been described. *Aske* and *chéttái* are circular cakes prepared from a batter made of rice meal and water, and sometimes also with the addition of milk, and baked in a rude oven. *Aske* differs from *chéttái* more in size, one being larger than the other, and one resembling a concavo-convex, and the other a plano-convex lens. *Chusi* is a kind of macaroni made from rice paste, but in short lengths, hardly measuring an inch.

Species 2.—Aliments with wheaten starch.

The common *ruti* of this country is a species of unleavened bread, made from ordinary fresh dough, in form of circular plates or flat cakes, either between the hands by flapping (*chapoti*), or flattened out by a roller. *Dallian* (*dalli ruti*).—It is now baked on a pan and then, still hot, quickly placed over some live charcoal, when the sides point and the whole thing presently swells out into a bladder-like form. It soon again sinks into its former shape by cooling, when it is fit for use. The hand-bread is either eaten raw (*sukna ruti*), or rubbed over with ghee (*ghee-maka ruti*). When in the bladder form, it may be made crisp by keeping it a little longer and constantly rolling it over fire (*kurkura ruti*). The native vermicelli or macaroni is prepared very much in the same way as in Europe. Both the pipe and ribbon forms are known.

Species 3 & 4.—The various *bhajajs* and *chhattus* here named have been already noticed. *Chattus* are simply powdered *bhajas*. *Saruchakli* has been also described.

Order B.—Those made of gur or sugar :

The preparations under this order are sufficiently expressive without further description

Order C.—Those obtained from the cocoanut :

Neyapatti is the delicious soft semi-transparent kernel of the young cocoanut. *Narikel kora*, and *narikel* flowers, &c., have been previously mentioned.

Order D.—Preparations of milk :

See for description under Milk.

CLASS II.—FESTIVE ALIMENTS OF BINARY COMBINATION.

Order A.—Those made of sugar with starch or starchy bodies :

Species 1.—*Murkis* (মুর্কি).

These are simply any sort of *khai* mixed with sugar or *gur*. *Nakal* is parched gram enveloped in sugar.

Species 2.—*Moahs* (মোহ).

These are compounds of *gur* with *khai*, *muri*, *chira*, *kaon*, &c., formed into balls of various sizes. Sometimes spices are added, and thus *moahs* of *khaiechur* (powder *chur*) are rendered highly flavoured. These last are known as *mukund moahs*.

Species 3.—*Chaktis* (চক্টি).

These are similarly prepared to *moahs*, and so called on account of being generally made on thick circular plates or wheels (*chakas*).

Species 4.—Certain laddus (लाडू).

These are not unlike *moahs*, but generally of smaller size and made more compact, the ingredients being previously beaten into a sort of pasty mass.

Order B.—Sugar with cocoanut with other oily bodies :

Chhayi is scrapings of cocoanut mixed with *gur*, or sometimes sugar.—*Narikel chira* is *chhayi* formed into balls.

Narikel chira, *jira*, *fuls*, are figures cut in imitation of *chura*, *jira*, and many flowers, from the ripened flesh of the cocoanut, and candied. *Rashkara* differs from *narikel* *naru* in the *chhayi* from which it is made being prepared with sugar; spices are often put in to flavour. *Keyori* consists of flattened bits of pulled sugar coated with some oily edible seeds, such as poppy seeds or those of seshamum orientale. *Birkhandi* is the same in thick round and square pieces. *Til narrus* are made with sugar and seshamum seeds. *Narikel takti*, *barfi*, and *yanga-jali*, vary little from each other excepting in form.

Order C.—Sugar

The *khas* *fir* with *khir* :

Taktis *chhanches* are merely preparations from a composition of *khir* and sugar, sometimes flavoured with camphor, cast on wooden, earthen, or stone moulds of various shapes and patterns. *Taktis*, *narus*, and *pulis*, are respectively the plated, round, and spindle shaped forms of the above. In the *khir*, *barfis*, and *sandeshes*, a little *chhanna* is frequently mixed, and some granular sugarcandy besides, called *bukni*.

Order D.—Sugar with channa :

Sandeshes are of circular form, consisting of plano-convex pieces joined together by their flat surfaces. The name is also used as a generic term for preparations of sugar and *chhanna*. *Gollahs* are globular, *pulis* are spindle-shaped, *chhanches*, *sandeshes* made in moulds are *ata* (custard-apple-shaped), *golab jam* (rose-apple-like), &c. *Mundis* mean diminutive *gollahs*. *Katcha gollah* and *rasha gollah* consist of more *chhanna* than sugar. *Chhanna murkis* are little *khair*-like nodules of *chhanna* encased in sugar, and the *gur sandeshes* are simply *sandesh* made with *gur* of the date instead of common sugar. I may here state that cane *gur* is never made into a *sandesh*. The date *sandesh*, when prepared, retains the peculiar flavour of the fresh date *gur*.

Order E.—Starch with ghee or oil :

Luchi is unbaked *ruti* prepared from a dough made with a little ghee and then fried in the latter substance or oil. *Puris* are similarly made, but larger. *Pappar* is a thin *ruti* of *bésam* mixed with spices and fried crisp and friable in ghee. *Phularies* are prepared from a batter of *bésam* and fried in small round lumps in the same substance or oil. *Channa chur* is fried, *chunna* or gram beaten flat and mixed with ghee or oil, and often hot spices.

CLASS III.—COMPOUND FESTIVE ALIMENTS OF TERNARY AND QUATERNARY COMBINATIONS, AND SOMETIMES OF MORE SUBSTANCES.

Order A.—Sugar with rice, starch, and cocoanut :

Siddha pulis are simply *pulis* (spindle-like cakes) of rice-meal paste stuffed with *chhayi*, and boiled in water or milk. *Bhaja pulis* of rice, *chura*, *khair*, sweet potato, *mug dal*, &c., are the same made of rice, *chira*, &c., flattened in the middle and fried on a pan in oil.

Order B.—Wheaten and dal starch, ghee, and plenty of mussalahs :

Kachuris are prepared like *rutis* from a dough of wheaten flour with a thick stuffing of dal paste and spices mixed up together and fried in ghee, and occasionally oil. *Dalpuris* differ from the above in not requiring any stuffing, *bésam* being mixed with the dough. *Nimkis* are made with a dough of wheaten and dal meal, to which some salt is added and then fried.

Order C.—Sugar, channa, ghee, and rice or dal starch :

Chhanna bara is easily prepared from a dough of *chhanna* and rice starch (latter is known as *safeda*) or sometimes dal starch, (*bésam*) in shape of balls varying from a hen's to duck's eggs, and these are then fried in ghee, and while still warm and porous, steeped and kept in syrup. *Panituas* and *lal mohuns* are nearly different sizes and shapes of the above.

Order D.—Sugar, ghee, shar, and khir :

Shar bhaja requires no explanation. *Matichur* and *bundeyas* of *khair* are simply sweetened *khair* made in the manner of those *methyes* or sweetmeats.

Order E.—Sugar, cocoanut, ghee, and starch :

Chandar kait.—This is a preparation of sugar, cocoanut, and starch, fried in ghee.

Order F.—Sugar, wheaten starch, besam, and ghee :

Several kinds of *gajahs* are met with. Some are thick cubes from half an inch to an inch long, some finger-shaped, some little lozenges, and some tongue-shaped. They are made from a dough of wheaten and dall starch or rice starch, shaped in forms as above, and fried brittle in ghee and then steeped in thick syrup, so as to give a thin coating of sugar over them when cooled. The *khajahs* differ from *gajahs* in shape of making, and in the material used being of a finer quality. A *khajah* when prepared somewhat resembles an elephant's molar tooth both in outward form and internal structure, consisting of vertical plates, which are arranged something in the same manner as the dentine in the elephant's grinder. They are cemented and thickly coated over with a hardened crust of syrup. *Jilapies* are made from a thin batter of wheaten starch with a little rice starch (*safeda*) and water; the mixture is then poured in boiling ghee in coils in a circular form from a flat-bottomed funnel, and when sufficiently fried, dipped and preserved in syrup. They resemble in miniature the flat-chambered shell of a nautilus. *Amartis* are allied to the above, but made from a batter of *mascalai* meal. *Matichur*, *packhan*, *bundeyas*, and *ghuris*, are similar in composition, prepared from a batter of besam and *saffeda* fried in ghee in shape of beads, the batter being passed through a colander with small or large holes as the case may be; the beads are afterwards saturated in thick syrup. When the beads are made into balls, they form either *matichur* or *packhan*, according as the beads are small and fine or coarse and large. In their separate state they are either *ghuris* or *badiyas*, the latter being the larger of the two. *Mohanbhog* or *halua* consists of fine wheaten flour (*suji*), ghee, milk, sugar, spices, almonds, and raisins, all mixed up together and boiled to the consistence of a paste. *Rash baras* are made with *mascalai* meal in form of balls and fried like *phularis* in ghee, but of a more spongy texture, and then steeped in syrup.

Order G.—Sugar or sweet pulpy fruits, starch and ghee or oil.

Malpoah is thus made:—Rice or wheaten starch, pulp of the plantain, and *mascalai* meal, all beaten up together into a batter and fried in cakes in ghee or oil and then soaked in syrup. *Baras* are round balls made in the same way, generally from a batter of some sweet pulpy fruit, as plantain, *tâl*, and a meal, either rice or wheaten.

Order H.—Sugar, ghee, pulp or flesh or certain fruits.

Morabbas or sweet preserve.—These are made pretty much in the same way as those in Europe. The best in the district are those of *bel* and *mango*.

Order I.—Milk, sugar, and some starchy substance.

Paramanna (परमन्ना).—The rice *paramanna* has been already described, others are similarly made.

Order J.—Rice-meal, gur, cocoanut, flesh, tilseeds, and mustard-oil.

Ananda Naru (अनन्दनरु).—This is made in form of balls from a paste compounded of the first four substances and then fried in mustard-oil. *Ananda naru* means the sweetmeats with which most Hindu families celebrate their marriages and the ceremony of *ear-boring*, *karna veda*, equivalent to that of circumcision among the Jews and Mahomedans.

XV. No reliable information is available as to the supply of salt and the amount of consumption per head of population; but judging from the consumption in my own house, I should say about a quarter of a *chittack* is consumed daily per head with wastage, or say five *soers* per year. At which rate, the population of the district being 1,012,000, the quantity annually required for the entire district would be 126,500 maunds. The salt consumed is the sea-salt, chiefly imported from Calcutta.

DRINKS.

XVI. No *tari* is made in the district. *Mahua* is unknown, and the spirits generally consumed are either English, or rather Calcutta, rum bottled and sold as brandies, or the *arrack* distilled in the Government distilleries—the former by the better classes in the towns, and the latter principally among the lower orders of Hindus, such as *baruahs*, *chamars*, *sweepers*, *prostitutes*, &c.

XVII. Tea and coffee are not cultivated.

XVIII. See description of the principal *sherbats* and beverages under Food. A specimen of country vinegar is shown.

SMOKING.

XIX. *Tobacco*.—Tobacco is only sparingly grown in small patches round houses by the *ryots*, but the leaf, although well formed and the outturn pretty fair as regards quantity, is very weak, owing probably to the too humid character of the soil and climate; and this is perhaps why the cultivation is not carried on on a large scale. The little tobacco raised is never brought to market, being principally kept for home

consumption by mixing it with the superior imported sorts. The mode of cultivation is not different from that followed elsewhere. There is only one form in which the weed is used for smoking, viz. that commonly known as *guruk tamac*, or cake tobacco, prepared by mincing the dried leaves, previously chopped fine with a *dào*, or reduced to powder in an *ukli* (wooden pestle and mortar), with *gur*, and then kneading the whole well with the hand into a hard paste. A few massalaha are sometimes added to give it an agreeable scent. A small cake of the chopped sort of the prepared tobacco will be found among the specimens. The other kinds are similar to those met with in Calcutta. Cheroots are not made in the district. The apparatus for smoking is the same as elsewhere. A little tobacco leaf is sometimes chewed by old women with *pán*, and a little is also consumed as snuff, but not much.

XX. *Siddhi, charas, and ganja :*

The drug *Canabis indica* is used in only two forms in the district, viz. either as *bháng* or *siddhi*, consisting of the dried upper leaves and the loose panicles without the stalks, which the natives collect during the rains while the plant is in flower, it growing quite wild in waste places in the villages; or as *ganja*, its dried clustered raceme, which is always imported and sold under Government license. Of these, *ganja* is alone smoked for intoxicating purposes, the other being almost always, I believe, employed only medicinally.

Charas and opium-smoking have, as far as I know, few votaries, if any, in the district.

XVIII.—*Pán or betel.*—*Pán* (पान), *Piper betel*.

Cultivated in a sort of green house, known as a *pán boroz*, at intervals of a few miles all over the district. Frequently several of these houses occur together. Besides shading from too much sun, the plant requires other careful nurture, which the baruis, the caste who cultivate the *pán*, alone understand how to bestow upon it. The soil of an elevated spot is essential, and it must be well drained and kept always well manured, the best manure for the purpose being old *khali* (mustard-oil cake). The *pán* produced in the district is of the common kind—no *chháchi pán* being, as far as I know, here grown; although to meet the Dacca market, quantities of this variety of leaf are, I hear, raised on just the other side of the Púdma, in the Dacca district. The leaf is universally chewed, daubed at first with a little quick-lime, and then placing over this a few slices of the areca nut and a small fragment of *kuth* or *khayér*; the whole is afterwards folded into a flattish cone or packet with the leaf outside—*pán khili*, a clove being often pierced through the upper open end of the cone as a pin to prevent the ingredients from falling out. The lime and *kuth* when chewed together gives a deep orange or red colour to the cud, and thus dyes the lips and tongue in the peculiar manner so common among the natives of this country. The *pán* thus eaten, generally after a meal, serves as a powerful digestive stimulant to the stomach, while, owing to the lime it contains, it prevents any undue acidity. I believe the chewing of the betel in the mouth has also something to do to preserve the teeth, which its votaries generally keep so well.

COOKING UTENSILS.

The subjoined list contains all the utensils ordinarily used for culinary purposes in the district. They are either of course baked earthenware, or stoneware, or made of metal, iron, copper, brass, or kasa, a kind of bell-metal.

I.—EARTHEN UTENSILS.

1. *Tolo* (ভট্টল), *boiling pot*.

This is the largest pot used in native cooking, of an oval form, and very much shaped like an ordinary jar, with the parieties however made rather thin. The mouth of this vessel is always about two-thirds its largest width at the middle. An ordinary *tolo* will hold about 20lb of cooked food. Half and quarter sizes are made for convenience of different families, and they are used for boiling water, boiling rice, and cooking dal, &c. Large tolos are sold at one anna a piece.

2. *Tijel* (তিজল).

This is a flattish vessel, with the mouth almost as wide as at its middle. A *tijel* is generally better baked than a *tolo*. It is used for preparing almost all native dishes, excepting boiling rice. Ordinary price of a *tijel* is about 6 pie.

3. *Malsa* (মালসা).

This resembles in shape and size a large bowl or cup without a foot-piece or a ring below to stand on. Used principally as a receiver. Price, pice a piece. When of smaller size it is called a *malsi*.

4. *Sara* (সরা).

This is a concavo-convex plate of earthenware, chiefly serving as covers to vessels. The *saras* in this part of the country mostly have a handle at the foot. Price, two for a pice.

5. *Kdlás, ghará*, (কলস, ঘড়া).—*Water-pots*.
Too well known to require description. Price, two to four pice, or an anna a piece, according to size.
6. *Khuri*.
This is a saucer-shaped ware, but with everted edges. They are employed to serve out dishes separately to each guest at a feast. Price, four for a pice.
7. *Katorá* (কটরা).
These are fashioned exactly like saucers, and used similarly as *khuris*. Price, two for the pice.
8. *Pite sara* (পিটে সরি).
This consists of a *sara* with a handled *katora* inverted over it, a contrivance for baking aske, a kind of rice cake. Price, half to one anna each.

II.—UTENSILS OF STONEWARE USED FOR COOKING PURPOSES.

1. *Sil*, and *Nora* (সিল ও নোড়া).
Slab and muller.—No description required. The usual price is 8 annas for a set.
2. *Pathr bati* (পাথর বাটি).
Stone cups, used for keeping and serving out acid dishes. Price varies according to kind of stone and make.
3. *Khora* (খোরা).
This is a large cup with a flat base, chiefly employed as a receiver for acid things. Price varies as above.

III.—METAL UTENSILS.

1. *Beri* (বেড়ী).
A pair of iron or brass tongs, used to take a cooking pot from the fire. Price, about two annas a pair.
2. *Hata* (হাতা).
A ladle made of iron or brass. Price, about an anna each.
3. *Khunti* (খুন্টী).
Is a ladle with a square or oblong flat blade, used to prevent anything sticking to a frying pan when frying. Price, about an anna each.
4. *Karai* (কড়াই).
Is a deep round metal pan, generally of iron, used for frying, stewing, and other similar dishes, and also for boiling milk and sometimes rice. Price, 8 annas to Rs. 1-4 each.
5. *Bagunu* (বগুনা).
Is a vessel made of brass in shape of a *tolo* and used similarly. Sold according to weight for Re. 1 to Rs. 1-4 a seer.
6. *Dekchi* (ডেকচী).
Is a copper boiler, shaped and used like the above, and also employed for cooking in general. Price as above.
7. *Tawa* (তাবা).
Is a thin flat iron pan without any border, used for frying in general, and baking *chapeti* or hand-made bread. Price, anna to two annas a piece.
8. *Batis* (বাটি).
These are metallic cups, of all shapes and sizes, used in native cookery, either as receiver of substances in the cooked or uncooked state, or for serving out dishes on the table after they are dressed. Sold by weight as baguna from Re. 1 to Rs. 1-4 per seer. As most of these utensils are common to every part of the country, only a few selected specimens will be sent—more to show how badly they are made in the district, than possessing any special local peculiarity or interest.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 22nd February 1873.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BURDWAN DIVN.	1 Burdwan	Feb. 25th*	Nil.	Weather getting hot ..	Winter crops being reaped. Grain market same as before. Rain wanted for spring crops.	Fevering. decreasing.
	2 Bancoorah	" 22nd	Nil.	Much warmer than in the preceding week. and cloudy during the latter part.	Barley and wheat are doing well, as also other rubee crops. Sugarcane is still being cut.	
	3 Beerbhoom	" 22nd	Nil.	The temperature has risen. There are some symptoms of rain.	Crops doing fairly.	
	4 Midnapore	" 22nd	Nil.	Cold at Contai. In sudder station hot and close. A few drops of rain on the evening of the 1st.	No change since last week.	
	5 Hooghly	" 22nd	Nil.	Clear and foggy two mornings; cool till middle of the week, and after that suddenly became hot.	Winter crops good. Nearly gathered.	
	Howrah	" 22nd	Nil.	Clear, no rain	There is now no paddy in the fields. The sugarcane crop, which is being cut, is a good one.	
<i>Central Districts.</i>						
PRESIDENCY DIVN.	6 21-Pergunnahs	" 25th	Nil.	Sensibly warmer since last report. Foggy and cloudy at times.	Pulses gathered and no crops standing except khesari and chillies in parts of the district. Rain wanted for ploughing.	General health good. Sporadic cases of cholera reported in the Barjipore and Diamond Harbour sub-divisions.
	7 Nuddea	" 22nd	Nil.	Becoming much warmer.	In general the crops are fairly promising. They would have been better with rain. In some places linseed and mustard have been much injured by insects. Gram has also suffered.	
	8 Jessore	" 22nd	Nil.	Clear and warm	Good.	
RAJSHAHYE DIVISION.	9 Moorshedabad	" 22nd	0.01	Clear and reasonable weather, but getting hot.	The prospects of the crops are on the whole promising, but want of rain is somewhat felt.	Return not received.
	10 Dinagepore	" ..	" ..	.....	.....
	11 Maldah	" 22nd	Nil.	Warm and dry throughout; the first three days fair, the last four cloudy. Heavy clouds and thunder on the night of the 21st.	Wheat, barley, and other crops of the season promise an outturn of 14 annas. Boro dhan is in a thriving state. A little rain is wished for.	
	12 Rajshahye	" 22nd	Nil.	Cloudy evenings following hot days. Mornings cool.	The rubee crops are beginning to suffer for want of rain. Mulberry lands also require rain. The reaping of the mustard crops has begun.	

* Telegram of the 25th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>		1873.				
RAJSHAHYE DIVN.	13 Rungpore	.. Feb. 22nd	·24	Slightly foggy	.. Good.	
	14 Bograh	.. " 22nd	0·12	Has been fair and delightful throughout. There was a slight fall of rain on the night of the 21st.	The prospects of the winter crops continue fair.	
	15 Pubna	.. " 22nd	0·03	Rather cloudy and warm, with rain threatening at close of week. On the night of the 21st there was a little rain, but not enough to do any good.	Some of the winter crops are ready to be cut. Rain is wanted for the other crops.	
COOCH BEHAR DIVN.	16 Darjeeling	.. ..	..	.....	.....	Return not received.
	17 Julpigoree	.. " 22nd	Nil.	Fair. Cloudy and promising rain the last two days.	Tobacco crop promising.	
	Cooch Behar	.. " 22nd	Nil.	Cloudy since middle of week.	Same as last week. A few showers of rain wanted.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	.. ..	..	.....	.....	Return not received.
	19 Furreedpore	.. " 22nd	Nil.	Weather slightly cloudy.	It is expected that rain will do good to rubber crops.	
	20 Backergunge	.. " 22nd	Nil.	Getting warmer	.. Very good.	
	21 Mymensing	.. " 22nd	Nil.	Weather warm and cloudy—looks like rain. A few drops of rain fell on the night of the 21st instant.	Land is being prepared for early rice cultivation. Rain would be beneficial	
	22 Sylhet	.. " 15th	Nil.	Hottish in the day time, cool in the mornings.	The state of the boro crop is promising.	
	23 Cachar	.. " 15th	Nil.	Fair; somewhat colder than last week.	No crops on the ground.	
CHITTAGONG DIVN.	24 Chittagong	.. " 15th	Nil.	Fine and seasonable; wind generally from the north.	Reports favorable. Nothing new.	Cholera still decreasing.
	25 Noakhally	.. " 15th	Nil.	Morning and evening cool and pleasant; hot sun during the day with high north wind. Atmosphere drier than before.	Cold weather crops good. A shower of rain is much needed.	
	26 Tipperah	.. " 22nd	Nil.	Heat increasing fast; the weather seems to threaten rain.	Mustard has been mostly gathered, and has yielded an average crop. The other small crops on the ground continue to thrive.	
	27 Chittagong Hill Tracts	.. " 15th	Nil.	Cold at night and early morning, and warm during the day time.	The gathering of the mustard is nearly over.	
	Hill Tipperah	.. " 15th	Nil.	Dry, clear, and cold	No change. Chillies doing well.	

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR			1873.			
PATNA DIVISION.	28 Patna	Feb. 25th*	Nil.	Weather fine, the sky having cleared up.	Spring crops and poppy doing well. The reaping of mustard, mussoor, peas, &c., going on satisfactorily.	Health of the district good.
	29 Gya	" 22nd	A few drops.	Fine	Opium good; other crops also favorable. Rain somewhat wanted in the north of the district. Reports from Aurungabad and Nowadah sub-divisions not received.	
	30 Shahabad	" 22nd	Nil.	Weather warmer and cloudy. West wind during the week.	The rubee harvest is going on, and there has been no blight.	
	31 Tirhoot	" 22nd	Nil.	Fair	The rubee crops continue well. Barley and oats are in ear. West winds are not favorable to the indigo prospects. Rain is wanted in some places.	
	32 Sarun	" 22nd	Nil.	Weather fair, and is getting warm.	Crops are generally doing well. Mustard and peas are being harvested. The poppy crop is in flower. Indigo is being put in the ground.	
	33 Chumparun	" 22nd	Nil.	Cloudy during greater part of the week. Fair on the 22nd. Weather getting warm.	The prospects of the rubee continue fair, but want of rain in the end of the year 1872 had bad effect on the crops. It is said that the outturn may be expected at more than half and below three-fourths of the average outturn of favorable years. Peas are being harvested here and there, and the outturn confirms the above expectation. The mustard has been also less than the ordinary average.	
BHAGULPORE DIVN.	34 Monghyr	" 22nd	0.02	Growing warm, sky cloudy, but rain holding off.	Crops are ripening fast. Sorsa already being cut, and prospects as good as ever.	
	35 Bhagulpore	" 25th	Nil.	.....	Reports differ, but for most part rain is required.
	36 Purneah	" 22nd	Nil.	Much warmer	A good deal of the tori has been gathered. The rubee crops are promising, but they would be better for a little rain.	
	37 Sonthal Pergunnahs...	" 22nd	Nil.	Weather getting warmer; cloudy during greater part of the week.	No alteration since last return.	
ORISSA.						
ORISSA DIVN.	38 Cuttack	" 25th*	Nil	Temperature variable.	Crops good.	
	39 Pooree	" 15th	Nil.	Wind variable; sky clear as a rule.	Moog coming on well. Nothing new to remark.	
	40 Balasore	" 22nd	Nil.	Fine, but getting hot	No crops on the ground ..	Cholera is becoming prevalent.
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
41	Hazareebaugh	" 22nd	Nil.	Variable, some days cloudy and close, others clear and cool.	No change since last week. wheat, barley, and gram, being cut and gathered.	

* Telegram of the 25th February received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
CHOTA NAGPORE.—(Contd.)						
<i>South-West Frontier Agency.—(Contd.)</i>		1873.				
42	Loharduggah	Feb. 22nd	0.04	Seasonable	The prospects continue pretty fair, though the crops will be short for want of rain.	
43	Singbhoom	" 15th	Nil.	Seasonable	Favorable	Small-pox in the town of Chai-basa is abating, and no deaths have up to date occurred from it.
44	Maunbhoom	" 22nd	Nil.	Fair and warmer	Favorable	What was reported as small-pox turned out to be chicken-pox, and has now disappeared.
ASSAM AND ADJACENT HILLS.						
45	Goalparah	" 15th	Nil.	A perceptible change in the weather; days somewhat warm and nights cold.	No crops on the ground except sugarcane, cutting of which continues. Assu (aus) paddy land is being tilled.	Some cases of small-pox near Goalparah. Measures taken for vaccinating the villagers.
46	Kamroop	" 24th*	.53	Rain fell at Gowhatty early on Saturday morning, and again in the afternoon, accompanied by thunder and lightning and high wind. The preceding days of the week were very close and warm.	Land for aus crop being broken. Mustard seed nearly all gathered. Sugarcane being cut. Pulse doing well.	Public health good.
47	Durrung	" 15th	Nil.	Cool, foggy mornings; hot middays; little breeze.	The mustard seed crop has been housed, and has turned out a little under average. Rain wanted.	
48	Nowgong	" 15th	Nil.	Fair and pleasant	Ahu land being ploughed. Mustard being reaped. Tea good.	
49	Sebsaugor	" 15th	0.52	Getting warm, though mornings still foggy. A smart shower of rain during the week.	Satisfactory	Cholera decreasing.
50	Luckimpore	" 15th	0.22	Foggy mornings, with bright clear days, and marked increase in temperature. Weather generally favorable for all agricultural operations. At North Luckimpore subdivision cloudy, and rain on the 9th and 10th instant; rest of the week fine.	State of the crops satisfactory; no particular change since last week.	District healthy, and free from all epidemic diseases.
51	Naga Hills	" 8th	0.09	Clear and fine throughout the district.	The hill men are still busy cutting their jooms.	
52	Khasi and Jynteah Hills.	" 15th	Nil.	Fine	All the crops are off the ground. Some of the lowlands being prepared for spring cultivation.	
53	Garo Hills	" 15th	Nil.	Fine weather. Cool winds. Nights very cold. Frost at Rong-rengirri on the night of the 11th February. Atmosphere very hazy.	Jooms are being prepared; they will be fired shortly now.	

* Telegram of the 21th February received on the 25th.

Published for general information.

CALCUTTA,
The 25th February 1873.

H. J. S. COTTON,
Offg. Asst. Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 2nd to 8th Feb. 1878.	Rain from 9th to 15th Feb. 1878.	RAIN FROM 1st JANUARY 1878.		REMARKS.	
					Inches.	Up to date.		
BHENGAL.								
WESTERN DISTRICTS.								
BURDWAN.	Burdwan	Burdwan	Nil.	Nil.	Nil.	15th Feb.		
		Cutwa	ditto	ditto	ditto	ditto		
		Culina	ditto	ditto	ditto	ditto		
		Bood-Bood	ditto	ditto	ditto	ditto		
		Banocunree	ditto	ditto	0.10	ditto		
		Jehanabad	ditto	ditto	Nil.	ditto		
	Bancoorah	Bancoorah	ditto	ditto	ditto	ditto		
		Booree	ditto	ditto	0.02	ditto		
		Midnapore	ditto	ditto	0.78	ditto		
	Midnapore	Turnook	ditto	ditto	0.50	ditto		
		Gurbetta	ditto	ditto	Nil.	ditto		
	Hooghly	Contal	{ Dy. Collr.'s Office	ditto	ditto	ditto	ditto	Not received 26th Jan. to 1st Feb.
		{ Exe. Engr.'s Office	Not rec.	Not rec.	ditto	4th Jan.		
			Nil.	Nil.	ditto	15th Feb.		
Howrah	Howrah	ditto	ditto	0.05	ditto			
	Howrah	ditto	ditto	0.05	ditto			
CENTRAL DISTRICTS.								
PRESIDENCY.	24-Pergunnahs	Sangor Island	ditto	ditto	Nil.	ditto		
		Calcutta	ditto	ditto	ditto	ditto		
		Allpore	{ Dispensary	ditto	ditto	0.10	ditto	
			{ Jail	ditto	ditto	Nil.	ditto	
		Bussacrhaut	ditto	ditto	ditto	ditto		
		Buraset	ditto	ditto	ditto	ditto		
		Diamond Harbour	ditto	Not rec.	0.45	ditto	8th Feb.	
		Harpore	ditto	Nil.	Nil.	ditto	15th Feb.	
		Sakherah	ditto	ditto	0.20	ditto		
		Warackpore	ditto	ditto	0.07	ditto		
		Duro-Dum	ditto	ditto	Nil.	ditto		
		Kishnahur	ditto	ditto	ditto	ditto		
	Nudda	Bongom	ditto	ditto	0.11	ditto		
		Meherpore	ditto	ditto	Nil.	ditto		
		Choodanpoh	ditto	ditto	ditto	ditto		
		Knooshta	ditto	Not rec.	0.24	ditto	8th Feb.	
		Ranshat	ditto	Nil.	Nil.	ditto	16th Feb.	
		Jessore	ditto	ditto	0.16	ditto		
	Jessore	Nursil	ditto	ditto	0.40	ditto		
		Khoolneah	ditto	ditto	Nil.	ditto		
		Jemidih	ditto	ditto	ditto	ditto		
		Buzirhant	ditto	ditto	ditto	ditto		
		Maccorah	ditto	ditto	ditto	ditto	Not received 19th to 26th January.	
			ditto	ditto	ditto	ditto		
RAJSHALY.	Moorshedabad	Berhampore	ditto	ditto	0.20	ditto		
		Bansacrhaut	ditto	Not rec.	Nil.	ditto	8th Feb.	
		City Moorshedabad	0.11	Nil.	0.25	ditto	15th Feb.	
	Dinagopore	Jumunore	Nil.	ditto	0.83	ditto		
		Azhneunge	0.10	ditto	0.33	ditto		
		Dinagopore	Not rec.	Not rec.	0.50	ditto	1st Feb.	
	Maldah	Maldah	Nil.	Nil.	0.43	ditto	15th Feb.	
			0.15	ditto	0.63	ditto		
	Rajshalye	Beaulsh	Nil.	ditto	0.51	ditto		
		Naffore	ditto	ditto	0.05	ditto		
		Rungpore	ditto	ditto	Nil.	ditto		
	Bograh	Bhovanigunze	ditto	ditto	0.20	ditto		
Titalya		ditto	ditto	0.22	ditto			
Boerah		ditto	ditto	0.14	ditto			
Pubna	Pubna	0.08	ditto	0.27	ditto	Not received 2nd to 8th February.		
	Serajgunze	Not rec.	ditto	ditto	ditto			
COOCH BEHAR.	Darjeeling	Darjeeling	{ Telegraph Office	ditto	Not rec.	Nil.	15th Jan.	
			{ Hospital	Nil.	Nil.	0.02	15th Feb.	
	Julpigoree	Julpigoree	ditto	ditto	0.05	ditto		
		Fallicotta	ditto	ditto	0.14	ditto		
	Cooch Behar Tributary State	Boda	ditto	ditto	Nil.	ditto		
		Cooch Behar	ditto	ditto	ditto	ditto		
Bhutan Doora	Buxa	ditto	ditto	0.44	ditto			
		ditto	ditto	ditto	ditto			
EASTERN DISTRICTS.								
Dacca.	Dacca	Dacca	{ Telegraph Office	ditto	ditto	Nil.	ditto	
			{ Hospital	ditto	ditto	ditto	ditto	
				ditto	ditto	ditto	ditto	
	Furzedpore	Ma. lekennee	ditto	ditto	ditto	ditto		
		Furzedpore	ditto	ditto	ditto	ditto		
		Goalundo	ditto	ditto	ditto	ditto		
Backerungo	Burrisail	ditto	ditto	0.29	ditto			
	Perozpore	ditto	ditto	Nil.	ditto			
	Madanpore	ditto	ditto	0.05	ditto			
	Patoakhally	ditto	ditto	Nil.	ditto	Not received 19th to 25th Jan.		
Dowlat Khan	Dowlat Khan	ditto	ditto	0.23	ditto			
		ditto	ditto	ditto	ditto			
Mymensing	Mymensing	ditto	ditto	0.20	ditto			
	Jamrpore	Nil.	ditto	Nil.	ditto			
	Aftash	ditto	ditto	0.24	ditto			
Sylhet	Kishorogunge	0.10	ditto	0.30	ditto			
	Sylhet	Nil.	ditto	0.83	ditto			
Cooch Behar	Cooch Behar	0.14	ditto	1.18	ditto			
	Hylakandy	0.21	Not rec.	1.31	ditto	Not received 5th to 11th Jan. and 8th Feb.		
	Koyah	0.13	Nil.	0.60	15th Feb.	26th Jan. to 1st Feb.		
CHITTAGONG.								
CHITTAGONG.	Chittagong	Chittagong	{ Telegraph Office	Nil.	ditto	0.20	ditto	
			{ Jail	ditto	ditto	0.35	ditto	
	Chittagong Hill Tract.	Cox's Bazar	ditto	Not rec.	0.20	ditto	8th Feb.	
		Rangamutur Hill	ditto	Nil.	0.40	ditto	15th Feb.	
		Noakhally	ditto	ditto	0.01	ditto		
	Tipperah	Oomillah	ditto	ditto	Nil.	ditto		
		Brahmanbariah	0.05	ditto	0.07	ditto		
Hill Tipperah	Hill Tipperah	Nil.	ditto	0.29	ditto			

DIVISION.	DISTRICT.	STATION.	Rain from 2nd to 6th February 1873.	Rain from 9th to 15th Feb. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.
					Inches.	Up to date.	
PATNA.	BEHAR.	Patna	Nil.	Nil.	0.21	15th Feb.	
		Behar	ditto	ditto	0.55	ditto.	
	Patna	Barh	0.05	ditto	0.16	ditto.	
		Dinapore { Jail ... Cantonment	Nil.	ditto	0.21	ditto.	
	Gya	Gya	ditto	ditto	Nil.	ditto.	
		Nowadah	ditto	ditto	0.17	ditto.	
	Shahabad	Aurangabad	ditto	ditto	0.33	ditto.	
		Jehanabad	Not rec.	Not rec.	0.10	18th Jan.	
	Tirhoot	Arrah	0.06	Nil.	0.33	15th Feb.	
		Sasaram	Nil.	ditto	0.11	ditto.	
	Sarun	Buxar	0.10	ditto	0.50	ditto.	
		Bhubbosh	Nil.	ditto	Nil.	ditto.	
	Chumparun	Mokuffepore	ditto	ditto	2.20	ditto.	
		Durbangah	ditto	ditto	0.02	ditto	Not received 1st to 6th January.
	Monghyr	Hajipore	ditto	ditto	0.15	ditto	Not received 26th Jan. to 1st Feb.
		Mudhubani	Not rec.	Not rec.	0.18	25th Jan.	
	Bhaugulpore	Seetamarree	Nil.	Nil.	0.20	15th Feb.	
		Tajpore	ditto	Not rec.	0.25	8th Feb.	Not received 1st to 6th and 12th to 25th January.
	Bhaugulpore	Chuprah	ditto	Nil.	0.29	15th Feb.	
		Sewan	0.02	0.04	0.40	ditto.	
Monghyr	Moteehari	Nil.	Nil.	0.00	ditto.		
	Bottin	ditto	ditto	0.25	ditto.		
Bhaugulpore	Monghyr	ditto	ditto	0.34	ditto.		
	Hogueserai	ditto	ditto	0.20	ditto	Not received 5th to 11th January.	
Bhaugulpore	Jamool	ditto	ditto	0.73	ditto.		
	Bhaugulpore	ditto	ditto	0.40	ditto.		
Purneah	Roopool	ditto	ditto	Nil.	ditto.		
	Mudheypoorah	ditto	ditto	ditto	ditto.		
Sonthal Pergunna	Banka	ditto	ditto	0.70	ditto.		
	Purneah	ditto	ditto	0.27	ditto.		
Sonthal Pergunna	Kishongunge	ditto	ditto	Nil.	ditto.		
	Arramah	ditto	ditto	ditto	ditto.		
Sonthal Pergunna	Deochur	ditto	ditto	0.29	ditto.		
	Jamtara	ditto	ditto	Nil.	ditto.		
Sonthal Pergunna	Rajmahal	ditto	ditto	ditto	ditto.		
	Pakour	ditto	ditto	ditto	ditto.		
ORISSA.	Nya-Doomka	ditto	ditto	0.26	ditto.		
	Godda	ditto	ditto	0.03	ditto.		
ORISSA.	Cuttack { Telegraph Office	ditto	ditto	Nil.	ditto.		
	Hospital	ditto	ditto	ditto	ditto.		
ORISSA.	Cuttack	Jajipore	ditto	Not rec.	ditto	8th Feb.	
	Kendrapara	ditto	ditto	ditto	ditto.		
ORISSA.	Pooree	Jugatsingapore	ditto	ditto	0.70	ditto.	
	False Point	ditto	Nil.	Nil.	15th Feb.		
ORISSA.	Pooree	Pooree	ditto	ditto	ditto	ditto.	
	Khoorlah	ditto	ditto	0.08	ditto.		
ORISSA.	Balasore	Balasore	ditto	ditto	Nil.	ditto.	
	Bhadruck	ditto	ditto	ditto	ditto.		
CHOTA NAGPORE.	Cuttack Tributary	Sambalpore	Not rec.	Not rec.	.....	.....
	SOUTH-WESTERN FRONTIER AGENCY.						
CHOTA NAGPORE.	Hazareebagh	Hazareebagh { Jail	Nil.	Nil.	Nil.	15th Feb.	
	Pachumba	Dispensary	ditto	ditto	ditto	ditto.	
CHOTA NAGPORE.	Loharduggah	Ranche	ditto	ditto	ditto	ditto.	
	Ringbhoom	Palarnow	ditto	ditto	ditto	ditto.	
CHOTA NAGPORE.	Maunbhoom	Chyelmans	ditto	ditto	0.10	ditto.	
	Gobindpore	Purulia	ditto	ditto	Nil.	ditto	
ASSAM & ADJACENT HILLS.	Goalparah	Gobindpore	ditto	ditto	ditto	ditto.	
	Goalparah	Dhoobree	ditto	ditto	ditto	ditto.	
ASSAM & ADJACENT HILLS.	Kamroop	Gowhaty	ditto	ditto	0.11	ditto.	
	Burpettah	ditto	ditto	0.50	ditto.		
ASSAM & ADJACENT HILLS.	Durrang	Tezpor	0.12	Not rec.	0.52	8th Feb.	
	Mungledye	ditto	Nil.	ditto	0.33	ditto.	
ASSAM & ADJACENT HILLS.	Nowgong	Nowgong	ditto	Nil.	0.05	15th Feb.	
	Sechsangor	Sechsangor	0.48	Not rec.	1.89	8th Feb.	
ASSAM & ADJACENT HILLS.	Sechsangor	Golschat	Nil.	ditto	0.67	ditto.	
	Jorehaut	ditto	0.80	ditto	1.86	ditto.	
ASSAM & ADJACENT HILLS.	Nasoeral	Not rec.	ditto	ditto	1.53	8th Feb.	
	Tehrooghur	0.08	ditto	1.45	ditto.		
ASSAM & ADJACENT HILLS.	Luckimpore	North Luckimpore	0.05	ditto	2.23	ditto.	
	Suddys	ditto	0.05	ditto	ditto		
ASSAM & ADJACENT HILLS.	Naga Hills	Ramooogooding	Not rec.	ditto	ditto		
	Shillong	ditto	Nil.	Nil.	15th Feb.		
ASSAM & ADJACENT HILLS.	Khaid and Jyntoah Hills.	Jaowai	ditto	ditto	ditto	ditto.	
	Cherrapoonjee	ditto	0.04	ditto	0.25	ditto.	
ASSAM & ADJACENT HILLS.	Garoh Hills	Tura	Nil.	ditto	0.43	ditto.	
	Benares	ditto	ditto	Nil.	ditto.		
ASSAM & ADJACENT HILLS.	Akyab	ditto	ditto	0.60	ditto.		

Meteorological Telegraphic Report for the period 16th to 22nd February 1873.

STATION.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. =100	WIND.		Rain.	Clouds.	Weather initials.
					Dry	Wet.		Direction.	Velocity.			
CALCUTTA.	Feb. 16th	10	30.005	30.021	74.5	61.0	41	N W	...	...	.....	b b
	16th	16	29.870	29.888	84.4	65.5	31	W N W	...	...	.....	b b
	17th	10	30.011	30.030	72.5	69.0	83	S by E	...	...	.....	b b
	17th	16	29.899	29.910	80.5	71.3	44	W by N	...	...	.....	b b
	18th	10	30.071	3.080	77.5	69.9	66	S S W	...	...	C C C	b b
	18th	16	29.970	29.983	86.7	69.2	37	W N W	...	...	C C C	b b
	19th	10	30.111	30.129	77.2	67.0	56	W by N	...	...	.....	b b
	19th	16	29.958	29.974	87.0	71.4	43	W by N	...	...	C C C	b b
	20th	10	30.043	30.066	76.0	68.5	58	W	...	...	.....	b b
	20th	16	29.878	29.896	89.0	71.0	37	W S W	...	...	C C C	b b
	21st	10	29.923	29.941	79.5	68.5	54	N W	...	...	C C K	b b
	21st	16	29.789	29.800	87.5	70.8	40	W by S	...	...	C C K	b b
22nd	10	29.958	29.976	80.0	71.9	65	S 4 E	...	...	.....	b b	
22nd	16	29.834	29.853	83.3	71.7	41	W N W	...	...	.....	b b	
SAUGOR ISLAND.	10th	10	30.058	30.064	74	67	67	N W	1.9	...	.....	b b
	10th	16	29.911	29.917	80	69	30	S W	8.0	...	.....	b b
	17th	10	30.048	30.054	79	73	73	S W	16.0	...	.....	b b
	17th	16	29.952	29.958	82	73	63	S S W	2.3	...	.....	b b
	18th	10	30.091	30.097	78	73	77	S W	2.7	...	C C C	b b
	18th	16	30.018	30.024	81	73	62	S W	10.9	...	C C C	b b
	19th	10	30.040	30.066	78	73	73	W	3.4	...	C C C	b b
	19th	16	29.995	30.001	83	72	56	S	0.7	...	C C C	b b
	20th	10	30.000	30.072	80	74	71	S W	8.0	...	.....	b b
	20th	16	29.917	29.943	82	73	63	S	11.8	...	.....	b b
	21st	10	29.903	29.909	81	67	44	N N W	4.5	...	.....	b b
	21st	16	29.829	29.835	83	73	60	S	7.2	...	C K K	b b
22nd	10	29.969	29.975	82	74	66	W S W	8.1	...	C K K	b b	
22nd	16	29.853	29.859	82	71	66	S	13.0	...	.....	b b	
MADRAS.	16th	10	29.911	30.005	75	64	51	N	5.4	...	.....	b, m
	16th	16	29.800	29.893	80	65	47	W	7.9	...	.....	b, m
	17th	10	29.908	30.003	77	68	60	N N W	4.3	...	.....	b, m
	17th	16	29.927	29.920	80	70	58	W S W	10.1	...	.....	b, m
	18th	10	29.841	29.980	71	68	75	N	4.5	...	C	b, m
	18th	16	29.884	29.976	81	60	43	W S W	6.8	...	C	b, m
	19th	10	30.000	30.120	77	68	60	N N E	5.7	...	C	b, m
	19th	16	29.889	29.981	80	70	48	W	6.7	...	.....	b, m
	20th	10	29.923	30.076	82	70	52	E S E	3.9	...	.....	b, m
	20th	16	29.827	29.920	82	70	52	S W	6.7	...	.....	b, m
	21st	10	29.853	29.944	80	72	66	S W	4.3	...	CK	b, m
	21st	16	29.735	29.827	84	71	50	S W	8.9	...	K	b, m
22nd	10	29.905	29.998	80	71	62	N N W	3.6	...	C, CK	b, m	
22nd	16	29.690	29.782	87	76	58	W N W	6.2	...	C, CK	b, m	
CUTTACK.	16th	10	30.018	30.018	83	74	63	N E by E	10	...	.....	b
	16th	16	29.894	29.974	82	73	63	E N E	10	...	.....	b
	16th	10	29.994	30.074	82	75	70	E	8	...	.....	b
	17th	10	29.898	29.928	82	72	59	N E	11	...	.....	b
	17th	16	30.013	30.013	83	75	70	N N W	4	...	.....	b
	18th	10	29.883	29.913	83	76	67	E	9	...	.....	b
	18th	16	30.037	30.067	84	76	67	E	10	...	.....	b
	19th	10	29.933	29.963	84	76	67	E by N	10	...	.....	b
	19th	16	30.006	30.066	85	76	64	E N E	12	...	.....	b
	20th	10	29.971	29.981	82	73	63	E N E	12	...	.....	b
	20th	16	30.043	30.078	82	74	64	N E by E	7	...	.....	b
	21st	10	29.884	29.916	84	76	67	N E by N	12	...	.....	b
21st	16	29.907	29.907	84	76	67	N E	4	...	.....	b	
AKYAB.	16th	10	29.891	30.064	78	69	61	N	0.0	...	C	b
	16th	16	29.835	29.917	80	67	26	E	2.8	...	.....	b
	16th	10	29.939	30.023	81	71	59	S S W	0.9	...	.....	b
	17th	10	29.785	29.807	80	70	35	E	3.0	...	.....	b
	17th	16	29.936	30.019	80	69	54	W	1.2	...	C	b
	18th	10	29.820	29.902	80	67	26	S E	1.6	...	C, S	b
	18th	16	30.000	30.082	79	70	61	S S W	0.4	...	.....	b
	19th	10	29.893	29.975	80	68	29	E S E	2.1	...	.....	b
	19th	16	30.039	30.123	79	68	47	W N W	1.2	...	.....	b
	20th	10	29.893	29.975	80	68	29	S E	3.2	...	K, S C	b
	20th	16	29.965	30.083	79	70	61	S W	0.0	...	.....	b
	21st	10	29.823	29.904	82	70	32	S W	2.9	...	.....	b
21st	16	29.873	29.956	82	68	38	W	1.1	...	C S	b	
22nd	10	29.723	29.804	81	69	28	S	2.8	...	.....	b	
22nd	16	29.983	30.005	78	67	60	E N E	0.1	...	.....	b	
22nd	10	29.869	29.891	81	69	51	W	2.0	...	.....	b	
22nd	16	30.006	30.028	76	67	60	N E	0.3	...	.....	b	
22nd	10	29.903	29.924	80	69	54	W	2.1	...	.....	b	
22nd	16	30.107	30.129	76	68	64	E N E	0.3	...	.....	b	
22nd	10	29.936	29.959	81	72	62	W	4.2	...	.....	b	
22nd	16	30.080	30.102	76	68	64	N E	0.2	...	.....	b	
22nd	10	29.954	29.976	82	72	59	S W	0.3	...	.....	b	
22nd	16	30.060	30.082	78	69	61	E N E	1.0	...	.....	b	
22nd	10	29.846	29.908	82	69	49	W	0.8	...	.....	b	
22nd	16	29.918	29.960	76	70	72	E	2.0	...	.....	b	
22nd	10	29.823	29.844	80	73	70	W	6.3	...	.....	b	
22nd	16	29.990	30.002	75	71	81	E N E	0.1	...	.....	b	
22nd	10	29.850	29.881	80	74	74	W	5.0	...	.....	b	

* Velocity of wind in miles per hour.

**Results of the Meteorological Observations taken at the Surveyor-General's Office,
Calcutta, from 15th to 21st February 1873.**

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.	
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.			
Feb.	15th	29.976	83.2	59.8	135.0	70.9	60.9	52.9	0.55	N W & E N E	...	102.0	...	...	Clear.
	16th	935	84.4	60.5	140.5	71.8	62.1	54.3	.58	W N W & N N W	...	79.0	...	...	Clear. Slightly foggy at 8 P.M.
	17th	945	80.5	63.0	142.5	73.5	60.9	62.3	.79	W by E & S S W	...	74.0	...	...	Clear and Cirri. Foggy from 5 to 9 A.M.
	18th	995	86.7	68.0	144.0	75.5	67.6	62.1	.65	S S W	...	84.5	...	...	Clear and Cirri. Foggy from 4 to 7 A.M.
	19th	30.023	87.7	65.5	142.0	75.7	67.4	61.6	.63	W S W & N W	...	79.9	...	...	Chiefly Cirri.
	20th	29.950	80.0	66.5	141.5	70.6	67.7	61.5	.61	S S W	...	80.5	...	...	Cirri and Clear.
	21st	8.53	88.0	68.0	142.8	77.3	69.0	63.2	.63	W by S	...	115.3	...	...	Clear and Cirrocumuli.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	29.2	
The max. temperature during the past seven days	...	89.0	
The max. temperature during the corresponding period of the past year	...	83.2	
The mean humidity during the past seven days	...	0.62	
The mean humidity during the corresponding period of the past year	...	0.71	
The total fall of rain from 15th to 21st	(by lower rain gauge	...	Nil.
	(by anemometer gauge	...	Nil.
Ditto ditto ditto	average of nineteen previous years	..	0.18
Ditto ditto between the 1st January and the 21st February		..	Nil.
Ditto ditto ditto	ditto, average of nineteen previous years	...	1.23

GOPEENAUTH SEN,
In charge of the Observatory.

The 24th February 1873.

GOVERNMENT OF BENGAL.
PUBLIC WORKS DEPARTMENT,—IRRIGATION BRANCH.

KHURRUF SEASON 1872, COMMENCING ON THE 1ST DECEMBER 1872.

Irrigation Operations of Lower Bengal during the month of December 1872.

Circle.	District.	Canal.	WATER SUPPLIED DURING 1872.		DAWA RICE IRRIGATION.		TOBACCO, COTTON, HELDRE, GINGER, WHEAT, AND (GARDEN PRODUCE.		OIL-SEEDS AND PULSES.		SUGAR-CANE AND OTHER CROPS.		RAINFALL.		REMARKS.							
			Estimated full discharge in cubic feet per second.	Average discharge in cubic feet per second throughout the month.	Area leased up to the end of the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Area leased during the month.	Total area leased up to the end of the month.	Inches during month.	Inches up to date.		Average of ten previous years for the same period.						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Orissa ...	Cuttack	High Level, Range I.	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	Canal closed for repairs.
	Ditto	Kendraparah	1,202	516.8	156	156	155	519	674	2	22	24	...	...	...	...	654	...	...	...	...	The Canal was closed up to the 5th, and water reached Muntri escape on 10th.
	Ditto	Taldunda	1,300	8.69	...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	Water let into the Canal on 20th.
	Ditto	Machgong	650	7.73	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ditto
	Midnapore	Midnapore	875	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	No irrigation.
South-Western.	Howrah	Panchkoarah	240	...	163	163	...	...	...	...	...	...	...	...	...	...	...	162	...	...	...	Water given gratis in consequence of heavy losses sustained by ryots in the late floods.
			Total	...	...	318	318	157	519	676	2	22	24	...	...	...	...	1,018	...	...	...

F. T. HAIG, Lieut.-Colonel, R. E.,
Offg. Joint-Secretary to the Government of Bengal
in the P. W. Dept., Irrigation Branch.

The 24th February 1873.

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 15th February 1873, on 28 miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week ...	8,615	1,367 0 0	134 14 0	20,382 0	606 0 0	69 12 0	195 6 0
Or per mile of railway ...	304	48 0 0	4 16 0	731 0	22 0 0	2 4 0	7 0 0
For previous 6 weeks of half-year ...	51,518	7,300 0 0	736 12 0	87,756 0	2,928 0 0	292 16 0	1,029 8 0
Total for 7 weeks ...	59,933	8,713 0 0	871 6 0	108,138 0	3,534 0 0	353 8 0	1,224 14 0
COMPARISON.							
Total for corresponding week of previous year ...	8,215	1,189 4 3	118 18 7	20,291 20	653 8 0	65 7 0	184 5 7
Per mile of railway corresponding week of previous year ...	293	42 7 7	4 4 11	724 28	23 5 5	2 6 8	6 11 7
Total to corresponding date of previous year ...	59,081	8,231 11 6	823 8 6	110,079 20.	3,043 0 6	304 7 3	1,127 10 9

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for week ended 15th February 1873, on 156½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week ...	34,081	34,876 0 3	3,197 0 5	155,065 25½	81,853 13 0	2,929 1 11	6,126 2 4
Or per mile of railway ...	218	222 13 8	20 8 7	991 0	201 2 19	18 14 4	39 2 11
For previous 6 weeks of half-year ...	178,172	1,54,049 6 0	14,121 3 9	621,730 3	1,34,539 6 6	12,334 12 2	26,455 15 11
Total for 7 weeks ...	212,253	1,88,925 15 3	17,318 4 2	776,795 28½	1,66,513 3 6	15,263 14 1	32,581 18 3
COMPARISON.							
Total for corresponding week of previous year ...	30,722½	21,603 13 6	1,930 7 1	93,048 25	19,430 8 3	1,781 19 1	3,762 6 2
Per mile of railway corresponding week of previous year ...	196	138 0 8	12 13 1	595 0	124 3 5	11 7 9	24 0 10
Total to corresponding date of previous year ...	218,683½	1,43,294 15 0	13,135 7 5	722,886 11	1,47,200 0 8	13,493 6 9	26,624 14 2

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 15th February 1873, on 1,260 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week ...	116,820	1,78,114 12 10	16,327 3 10	810,901 20*	4,16,192 5 0*	38,150 19 2	51,478 3 0
Or per mile of railway ...	.....	139 2 5	12 15 2	.....	325 2 5	29 16 1	42 11 3
For previous 6 weeks of half-year...	575,620	8,86,084 14 9	81,224 9 0	4,226,107 30	21,67,065 12 0	198,612 3 11	270,806 12 11
Total for 7 weeks ...	692,440	10,04,199 11 7	97,551 12 10	5,038,000 10	25,83,194 1 0	236,793 3 1	334,344 15 11
COMPARISON.							
Total for corresponding week of previous year ...	108,238	1,71,240 13 11	15,697 18 1	807,035 10	4,71,022 4 3	43,452 0 10	59,149 18 11
Per mile of railway corresponding week of previous year ...	.....	133 12 8	12 5 4	.....	370 5 3	33 18 11	46 4 3
Total to corresponding date of previous year ...	698,050	10,87,508 2 4	99,688 4 11	5,214,762 20	32,67,535 6 3	299,524 1 7	390,412 6 6

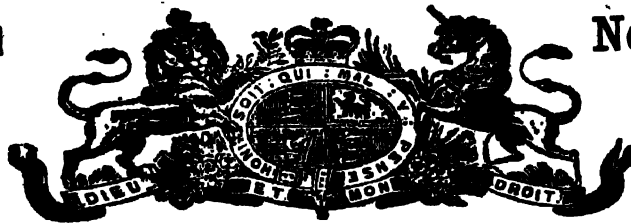
* Mds. 9,573-20 and Rs. 9,077-12-3 added to merchandise traffic, being difference between estimated and actual traffic for previous weeks for stations from which returns had not come to hand when closing the statements for those weeks.

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 15th February 1873, on 223½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week ...	5,224	16,502 8 7	1,514 1 8	69,094 29	21,064 5 3	1,985 17 11	3,504 2 7
Or per mile of railway ...	.....	74 1 8	6 15 10	.....	96 14 11	8 17 9	15 13 7
For previous 6 weeks of half-year...	27,977	84,493 5 0	8,112 1 5	387,061 29	1,25,521 9 6	11,566 2 11	16,618 4 4
Total for 7 weeks ...	33,201	1,05,037 13 7	9,630 0 1	457,056 0	1,47,145 14 0	13,432 0 10	23,122 6 11
COMPARISON.							
Total for corresponding week of previous year ...	5,180	17,653 10 2	1,618 5 0	61,452 10	17,549 8 5	1,608 11 2	3,226 19 2
Per mile of railway corresponding week of previous year ...	.....	79 2 7	7 5 2	.....	78 11 2	7 4 3	14 9 5
Total to corresponding date of previous year ...	37,210	1,16,404 0 9	10,670 7 5	522,313 20	1,34,977 8 2	12,372 18 0	23,043 6 2





SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, MARCH 5, 1873.

OFFICIAL PAPERS.

Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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GOVERNMENT OF INDIA.

HOME DEPARTMENT.

TREATMENT OF SNAKE-BITE BY MEANS OF THE INJECTION OF AMMONIA AND BY OTHER REMEDIES.

The following papers on the subject of the treatment of snake-bite are published for general information:—

In pages 283 to 296 is reprinted a paper read before the Medical Society of Victoria by Professor George B. Halford, M.D., in June 1870, and published in the Australian Medical Journal, together with an Appendix. Dr. Halford is an advocate of the treatment of snake-bite by injection of Ammonia.

The pages which follow contain the remarks (in some cases abstracted) of the Officers of the Indian Medical Service to whom copies of Dr. Halford's pamphlet were forwarded.

THE TREATMENT OF SNAKE-BITE IN VICTORIA :

BY GEORGE B. HALFORD, M. D.,

MEMBER OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON, PROFESSOR OF ANATOMY, PHYSIOLOGY, AND PATHOLOGY IN THE UNIVERSITY OF MELBOURNE.

[Being a paper read before the Medical Society of Victoria, June 1st 1870.]

MR. PRESIDENT AND GENTLEMEN,—When for this paper I first took pen in hand, my intention was to answer some false statements concerning me which appeared in the *Lancet* of May 26, and which were re-published in some of the daily papers of this city; but, as I reviewed the doings of the past eighteen months, I quite forgot the *Lancet* and the papers. Hence, Sir, I must apologise for saying nothing about them, and for changing the title of my paper from "A reply to the *Lancet*, &c.," to "The Treatment of Snake-bite in Victoria."

The 1st case in which liquor ammonia was injected, from my previous suggestions, into the human veins, occurred at Beechworth, 185 miles from Melbourne, in the practice of Dr. Dempster. A man had been bitten at 8 in the morning, and was insensible and apparently dying at noon. Dr. Dempster injected twelve minims of liq. ammonia fort., diluted with

water, into the saphena vein. The patient woke up immediately, and presently recovered. As this is the first recorded case, it is as well to state that the remedy was used as a *dernier ressort*. Had Dr. Dempster any probability of saving his patient by other means, he would not have injected ammonia; but having done so, and with immediately perceptible good effects, he attributed the man's recovery to the injection of ammonia. Dr. Dempster's account of this case at once attracted the attention of the medical profession of this colony.

The 2nd case was in the practice of Mr. Arnold, of Elsternwick, who, assisted by Mr. A'Beckett, of St. Kilda, near Melbourne, failed to arrest by ordinary means the progress of the poisoning. When the man was insensible to sound and light, I at their request injected thirty minims of liquor ammonia, B. P. sp. gr. .959, into the superficial radial vein. The patient at once roused, and conversed with those about him. The species of snake was *Hoplocephalus superbus*.

The 3rd case is recorded in the New South Wales papers, but I have failed in getting full particulars, Dr. Irwin, the medical practitioner, having since died.

The 4th case—a man was bitten at Moyston, 146 miles from Melbourne. The patient was comatose, and fast sinking. Liquor ammonia was injected into the basilic vein, and recovery followed. In a letter to me, Dr. O'Grady states that, "but for injection of ammonia, the man would have died."

The 5th case—a girl, aged 14. The symptoms were total paralysis, complete stupor. Fifteen minims of liquor ammonia were injected into the median vein by Mr. Barnett, of Smythesdale, 107 miles from Melbourne, and the patient was roused in a few minutes, and recovered. The species of snake was *Hoplocephalus curtus*.

The 6th case occurred at Mornington, 35 miles from Melbourne. The boy was insensible. Mr. Lane injected thirty minims of liquor ammonia into the basilic vein. The previously dilated and insensible pupils immediately contracted, and consciousness returned, and recovery followed.

The 7th case—a child, aged nine years,—was perfectly insensible; pupils fixed and dilated. This happened at Scymour, 64 miles from Melbourne. Diluted ammonia was injected into a vein at the bend of the elbow, by Messrs. Henshall and Stillman, and the child roused immediately, and recovered in a few hours.

Case 8 is a somewhat doubtful case, the child, aged 9 years, having been brought to the hospital at Kyneton, 56 miles from Melbourne, 27 hours after the accident. Five minims of liquor ammonia fort., with twenty-five of warm water, were injected into the basilic vein. Before the injection the pulse was intermitting frequently, the extremities cold, and the pupils dilated and insensible to light; there was also locked-jaw. Four hours after, a similar dose was again injected. No apparent effect followed the use of the remedy, and the child died, remaining perfectly sensible to the last.

Case 9.—Dr. Rae, of Bacchus Marsh, 34 miles from Melbourne, injected thirty minims of liquor ammonia and thirty of water into the basilic vein of a man who was perfectly insensible, cold, and, according to the Doctor's belief, on the point of dying. The patient roused in one minute after the injection, and in less than half-an-hour walked away, recovered.

Case 10.—Symptoms in this case not severe; more like those of drunkenness. Dr. Starke, of Creswick, 109 miles from Melbourne, injected ammonia into a vein, and the boy recovered unusually quickly.

Case 11.—In which a man was believed to be sinking, having been bitten twice by an infuriated brown snake (*Diemenia superciliosa*), was roused in one minute by an injection of ammonia into the vein; but the bitten parts not having been excised, and a ligature loosened after the supposed recovery, all the worst symptoms returned, and a repetition of the injection five times was required in order to thoroughly restore the patient. This occurred in the practice of Dr. Dowling, of Talbot, 131 miles from Melbourne.

Case 12.—A woman was bitten at Tarraville, in Gipps Land, 207 miles from Melbourne. She was described by Dr. Eccles as cold, pulseless, insensible, and on the point of dying. The veins were twice injected with liquor ammonia, and consciousness returned in twenty minutes. The circulation was restored immediately upon the injection.

Case 13.—The only interest about this case, which occurred at Taradale, 67 miles from Melbourne, is that ammonia was injected, by Drs. Crooke and Hutchison, both into the vein and subcutaneously; and that after the circulation had been restored by the injection, she roused and recovered.

Case 14.—In the practice of Dr. Langford, of the Kyneton hospital, in which thirty-six minims of liquor ammonia, B. P. sp. gr. .959, were injected into a vein of the fore-arm of a woman, who was totally paralysed, insensible, and in a most alarming condition. She roused immediately, and walked about the ward without assistance.

Case 15.—A boy, aged 12, was bitten at Devil's Creek, and became pulseless, comatose, and totally helpless; the pupils dilated and insensible to light. Six drops of liquor ammonia fortissimus, with two drachms of water, were injected into a vein of the fore-arm. Consciousness at once returned, the pulse rose, and recovery ensued. My authorities for this case are the boy's own father, Mr. Richardson, and Mr. Walpole.

Case 16.—A man was brought to Dr. Rae, of Colac, 92 miles from Melbourne. He had been bitten at 12-30 P. M., and at 4-30 P. M. was comatose, the pupils were dilated and insensible to light, and the extremities cold. Ammonia of a gradually increasing strength was injected ten different times into a vein in each arm, until one drachm and a half of liquor ammonia fortissimus had been used. The pulse and breathing improved, the pupils con-

tracted, the jaw, which had fallen, drew up, and, to the astonishment of everybody, he walked away in two hours.

Case 17.—A woman was bitten at Bambra, and soon became drowsy and helpless. On arriving at Winchelsea, a distance of 14 miles, she was completely comatose, and was carried into the house. The pupils were fixed, dilated, and insensible to light. Dr. Meyler injected ten minims of liquor ammoniæ fortissimus, mixed with fifty of water, into the cephalic vein. During the operation she was quite insensible. Before half a minute had elapsed, she roused up into consciousness, the pulse became fuller, and the temperature of the body sensibly increased. In a quarter of an hour she began to eat bread and butter, and from that time rapidly recovered.

Case 18.—A woman was bitten at Tumbacumba, New South Wales, between 9 and 10 A. M., and having had ammonia injected under the skin, was at 5-30 P. M. quite helpless, pale, and nearly insensible. Twelve minims of liquor ammoniæ fortissimus, mixed with twenty-four of water, were injected into a vein of the arm previously laid bare. Half was first injected, and the remainder after the lapse of ten minutes. It had an almost instantaneous and magical effect, consciousness returning, with free use of the muscles, succeeded by cheerfulness. By-and-bye the bad symptoms returned, and the injection was twice repeated and recovery followed. She had no recollection of anything that occurred from the time of stupor setting in, at noon, till near midnight. My authority for this case is Mr. R. D. Mathews, whose hypodermic syringe was used.

Case 19 has been communicated to me by Dr. Bennett, of Albury, 207 miles from Melbourne. A child, aged 7 years, was supposed to have been bitten by a snake in the morning. No particular symptoms occurred till 7-30 P. M. Drs. Bennett and Keating found him pale, the skin cold and clammy, the pulse 120, the pupils widely dilated, very drowsy but easily aroused, and able to answer any question very sensibly. Liquor ammoniæ was injected into the basilic vein. The child rallied, and was put to bed quite easy and comfortable, pulse 90, skin warm. The next morning the neck, cheeks, and tongue appeared swollen; these symptoms increased till about 1 P. M. He now refused to swallow, the pulse rose to 130, the pupils became again widely dilated, the extremities cold, and drowsiness constant. Injections into the vein were now made four times at intervals of a quarter of an hour each. The child improved very much; his colour returned; he could drink easily; the pupils were less dilated; he became quite sensible, now and again talking voluntarily to his mother. Dr. Bennett adds, "I felt quite satisfied, and left him for a couple of hours, during which time Dr. Keating saw him, and considered him very much better. Soon after 10-30 I found him greatly changed; pulse 160, very weak. I wished to inject again, but the mother would not allow it, and I have only to regret I did not enforce it." Soon afterwards the child died.

The 20th case is that of a child, six and a half years old, bitten by a snake at Dandenong, 19 miles from Melbourne. Before reaching Dr. Phillips, at 3 P. M., neat brandy was given to him every five minutes, so that half a pint was consumed. On arriving, the pupils were widely dilated, the pulse very small, very irregular. There was great disposition to sleep, and great intolerance of the efforts either to awaken him or to give brandy; but a consciousness, when aroused, very different from a state of intoxication. Two ounces more brandy were given, but no improvement following, diluted ammonia was injected into the cephalic vein, and repeated. Not all of the ammonia passed directly into the vein, and the solution was of uncertain strength, none so strong as it should be. The child also lost some blood, as the vein was opened with a lancet. However, the child died, the *post mortem* examination revealing none of the ordinary appearances of snake-bite, but great congestion of the brain, which it is not improbable was caused by the brandy. Although in my opinion a case of snake-poison, it can scarcely be said to have been treated on my plan alone.

Of the foregoing twenty cases, three then have ended fatally, a child being in each case the sufferer.

In Dr. Langford's case, No. 8, twenty-seven hours had elapsed since the child had been bitten, and before he was brought to the hospital.

In Dr. Bennett's case, the child had apparently recovered from the coma, difficulty of swallowing, and collapse, under the treatment which, to the Doctor's regret, was stopped by the mother. We have seen in cases Nos. 11, 16, and 18, that the amount and strength of the ammonia must be increased in proportion to the severity of the case.

Case 20 was also a child, and possibly beyond any treatment; but cases 7 and 12 were also children of the ages of 9 and 12, and yet recovered.

Of the seventeen successful cases, it may be said that they would have recovered had nothing at all been done. No one can deny this; but I have been at the pains of inquiring of those who had charge of the patients, and this is their reply:—

Dr. Dempster believes the man would soon have died.

Drs. Arnold, A'Beckett, and Wooldridge, the same.

A similar opinion was expressed by Drs. O'Grady, Barnett, and Lane, Dr. Rae (of Bacchus Marsh), Dr. Rae (of Colac), Dr. Dowling, Mr. Eccles, Messrs. Henshall and Stillman, Dr. Langford, &c., of the cases attended by them.

I pass now to the consideration of the state of a person dangerously bitten by a snake, and to the effect of ammonia when injected into the circulation. And here, in addition to a mere statement of facts, I must pass into hypothesis.

In fatal cases of snake-poisoning, whether in this colony, India, America, or Africa, it may be stated, as a rule, with few exceptions, that the blood loses its power of coagulation, and

becomes thinner and poorer; its colour resembling the most deoxidised form of Stok's crurine. This blood, however, after death, greedily absorbs oxygen, when exposed to the air, and it absorbs it more than unpoisoned blood. Since my attention was first directed to this subject, I have met with Dr. Harley's observations on the influence of poisons on the respiratory gases. In a dog poisoned by a puff-adder, the blood absorbed two per cent. more of oxygen than healthy blood similarly treated. Now, as I asked in my first paper on this subject, why, when no impediment exists to the access of oxygen, should the blood become so gradually deoxidised in people bitten by snakes; excepting on the supposition that something had been added to the blood which prevented those actions and re-actions between blood and oxygen upon which the manifestations of life depend? The fluid state of the blood is also in harmony with deficient oxidation, and yet there is no hindrance to respiration; no reason, like in drowning, why oxygen should not reach the blood; it does reach, but in the presence of the serpent's poison, its life-sustaining power is withheld, unless some other agent be added to the blood to counteract it. The deficiency of fibrine and of oxygen I formerly explained on the supposition of the growth of foreign cells within the blood. I now modify that view, and explain the facts differently. The facts are still the same, but their interpretation different. The large cells are strangely altered, white corpuscles, greatly swollen, and certainly increased in quantity; the increase in size apparently keeping pace with the fluidity of the blood, although such changes do not occur in white corpuscles simply placed in water. This change in the corpuscles commences during life, but goes on indefinitely after death, until all the granular matter seen at first in the blood becomes converted into cells. Their average diameter is $\frac{1}{1700}$ inch. The nucleus is round, or kidney-shaped, and the outer cell-wall so extremely delicate as to escape the notice of most observers, until their attention is repeatedly directed to it; in addition, the application of magenta reveals a minute colored spot, like a ruby, at some part of the circumference, resembling the macula seen in the red corpuscles of all vertebrates, as pointed out by Roberts. But this condition of white cell is common to nearly all fluid blood of dogs and cats I have since examined. Where especially it is deficient in fibrine, the cells become very evident after death. But when the blood is rich in fibrine, the corpuscles, being less at liberty, retain their normal shapes. In fact, they swell in serum minus fibrine; on the contrary, in leucocythæmia, where both white cells and fibrine are in excess, these changes do not occur. (*See Appendix.*)

I am still inclined, however, to refer all these changes in the blood to the introduction of germinal matter* from the serpent's glands, and all the symptoms to such changes. To explain: there is little, if any, difference, chemically, between starch and sugar; but, physically, they are very different; little difference, chemically, between fibrine and albumen; physically, they are very different. But both starch and fibrine are rendered soluble by the addition of minute particles of germinal matter: in the first case, from the salivary glands; in the second, from the stomach. True, with the latter is combined an acid, but without the pepsine cells no digestion takes place, and, what is very remarkable, a very minute quantity is able to convert a very large quantity of fibrine into albumen, so long as the mixture remains acid; the pepsine cells require no renewal, since, for want of a better explanation, they are said, by their mere presence, to determine the conversion. A little spittle from a man's mouth will change starch into sugar within one minute. These things being true, is it unreasonable to claim for the secretion of another closely allied gland to the salivary, an equal power in another direction? What the changes produced in the blood are we do not yet fully know; but that which in healthy blood is called fibrine is diminished, digested, if you will, in the presence of serpent's venom. If the quantity of venom entering the circulation is great, the changes are greater, and the chances of recovery less. If the animal is small, his chances are still less; if it depends much upon oxygen with a naturally highly fibrinous blood, rapid circulation and absorption, it soon falls a victim. Thus, a bitten bird falls in a few minutes from a twig to which it has hopped, to the waiting reptile beneath. Hence the old stories of snakes charming birds. If the animal be in a great degree indifferent to oxygen, *i. e.*, can live for a long time under water, in carbonic acid gas, as a reptile or hibernating animal, with correspondingly slow circulation and absorption, its chances of recovery are greater; it is naturally more indifferent to the presence of venom, and the probability of absorption from a wound is much less.

But, it may be said, the symptoms of snake-poisoning come on too soon for such changes in the blood to be produced; but recollect the nearly instantaneous action of ptyaline. Again, if venom enter a vein, one minute will certainly suffice for its entire circulation through the body. Estimating the quantity of blood in the body as 12 lbs., and the contents of the left ventricle as 3 ozs., then the whole mass of the blood would be circulated by 64 heart-beats; and, taking the normal beats at 75 per minute, this quantity of blood would pass through the heart, carrying with it the imported venom, in 51 seconds. In June 1866, I showed by experiments that dyes, such as magenta, may be absorbed from the serous cavities, peritoneum, and pleura, and from the subcutaneous connective tissue, and traverse the circulation, and be excreted by the kidneys, and ejected by the bladder, under five minutes. The experiments were made on dogs and fowls. Lately, Drs. Macnamara and Haughton have found iodine pass from the tunica vaginalis testis, and to be discharged by the bladder in four minutes; therefore, in man symptoms of poisoning may certainly be possible in five minutes, in birds in half that time.

Believing, then, that in the blood itself the chemical changes occur which have their results in voluntary and reflex acts (will, motion), and in animal heat, let us turn to the condition of our snake-bitten patient. He is usually pale, with a great tendency to sleep, the heart's

* The germinal matter consists of nuclei $\frac{1}{300}$ inch diameter. The fluid is either slightly acid or neutral.

action is feeble, and in some cases deep coma ensues, from which it is difficult to arouse him; in fact, the countenance is like that of an epileptic after the convulsion. Do not the pallor and drowsiness indicate an anæmic state of the brain, or rather a diminution of the arterial capacity and extension of the venous surface analogous to that which takes place in a less degree in ordinary sleep, according to the researches of Mr. Durham? In all of the cases brought before you this evening, the functions of the cerebral ganglia and higher sensorium were completely in abeyance, or for a time extinct: Dead the sufferers were to both sound and light, and to this hour they have no knowledge of the injections to which they were subjected. Now it is worthy of notice, that recent views ascribe the phenomenon of sleep to the using up of the previously stored-up oxygen in the blood, analogous to the views I propounded in June 1867, for the accession of sleep in cases of snake-poisoning.

There is yet another symptom of snake-poisoning, which deserves the greatest consideration; I allude to the condition of the pupil. It is that of extreme dilatation, depending, as I believe, upon the condition of the central optic ganglia. Light is pouring into the eye-ball, and yet no reflex acts are produced. An exactly similar condition affects the auditory ganglia, vibration after vibration shocks the tympanum, each falling silently upon the central ganglia.

Sometimes this condition of the sensory ganglia, including probably the corpora striata, optic thalami, and corpora quadrigemina, exists whilst the higher cerebral ganglia either remain a long time unaffected or escape entirely; in the latter case, recovery resulting; in the former, constituting a most dangerous state, and one that should make the physician very anxious, more especially when accompanied by swelling or pain in the neck. From the details of cases I have read, I should fear these symptoms more than the deepest coma. I was very pleased to see, however, that in Dr. Bennett's case, 19, the symptoms yielded to the injections of ammonia. Our esteemed fellow-citizen, Mr. Clement Hodgkinson, thus records in the *Herald* his own experiences, after having been bitten in New South Wales, showing the dullness, if such a term may be used, of the central, and immunity of the higher, ganglia. He says:—"There was insensibility to the effect of pungent salts when held to the nostrils, and to pinches inflicted on me by some of the lookers-on, who desired to thereby prevent me from falling into a comatose condition. There was also deprivation of sight. About two hours after I was bitten, this symptom attained its greatest intensity, and I was then scarcely able to distinguish the features of the persons near me." Mr. Hodgkinson, we all know, is no ordinary man, and I have no doubt his intellectual activity, or will, contributed to save him. Poor Mr. Drummond was conscious to the last, sight and feeling having been for some time deficient. His force of character contributed greatly to prolong his life. I may be better understood, if I contrast them with men of an opposite class. The Hindoos, with will so pliant, or character so impressible, as to be drawn into the mesmeric state with ease; bitten, they soon die, yielding without an effort to avoid their fate.

The treatment that I had recommended is that of injecting dilute ammonia, say, at the least, 30 minims of the liquor ammonia, B. P. sp. gr. .95 into a superficial vein. If properly injected, the vein having been first exposed, and its coats pierced with the nozzle of the hypodermic syringe, the alkali soon reaches the heart, vigorous contractions follow, blood that was recently stagnating in the capillaries passes on, cut vessels, which had ceased bleeding, bleed afresh, the temperature rises, the colour improves, the muscles contract, the sensory ganglia respond to external impressions, the nearly or quite inanimate mass is now animate. Light and sound are perceived, the faces of friends are recognised. This is no exaggerated picture, but such as I have myself witnessed in dogs (the central organ being exposed, and artificial respiration kept for an hour) recovering instantly from the stupor of chloroform. I have also repeatedly pierced the heart itself, and there injected the ammonia, with similar good and no bad effects. I have witnessed the same restoration to consciousness in the station-master at Elsternwick (Case No. 2), and can call to your recollection the same startling assertions from all parts of the colony. Thus, Dr. Dempster's words are:—"It affected him at once; he woke up and became sensible." Dr. Barnett says:—"In a few minutes she began to recover from the stupor, and became so excited as to be held down on her bed." In Mr. Lane's case, verified by my friend Professor Wilson, the pupils began to contract, and consciousness returned in a few seconds, certainly under a minute. Dr. Rae, of Bacchus Marsh, assured me he thought his patient dying, and yet—not believing then in this remedy—he injected, and within a minute consciousness returned, and in about ten minutes the man walked into the open air unassisted. Dr. Longford says:—"Having used the injection three times without effect in the case of the boy Piggins, I used it in this case (No. 14) with the full expectation of failure, and was never more surprised than when I saw my collapsed patient rise up and walk away." Mr. Dallimore, writing to the *Age*, about Dr. Dowling's case, says:—"When I went to see the man while under treatment, I was quite as sceptical of the ammoniacal injection as the contributor to the *Medical Gazette* appears to be; but its action is so startling, I may say so magical, that if a man on seeing it could not be convinced, he must be singularly constituted." In Dr. Meyler's case, the woman being in a comatose state, was roused to consciousness in half a minute. Dr. Meyler has since written to me on this subject; his words are:—"The treatment in Mrs. Parker's case was not only decidedly successful, but exceeded my most anxious hopes, and finally removed any lurking doubts that may have lingered in my mind," and so on of others. But let us bestow the short time that is left, for the paper is already too long, upon considering the *modus operandi* of the remedy.

The remedy, then, is ammoniacal gas in solution, an old and favourite one for snake-bite the world over; but instead of putting it into a stomach, the stagnating vessels of which cau-

not absorb—for all the brandy and ammonia poor Mr. Drummond took were afterwards found in the stomach and intestines, and so no doubt of others—I inject it into the blood itself; the gas, experiencing a rise of temperature, expands, and presently is in direct contact with every tissue in the body, the capillary walls alone intervening—in fact, it becomes both a central and peripheral stimulus, so powerful that as yet no soporific tendency has counteracted it; none of the comatose states of snake-poisoning have failed to be removed by it; *but, as its power is expended, fresh supplies must be brought.* It does not act as a transitory stimulus to the heart, it maintains vigorous pulsations for at least twenty minutes or more, frequently requiring no repetition. Its presence in the nervous system and muscles is shown by the resulting animation; there is also a rise of temperature. It is presumable, therefore, that oxidation is going on in the blood, where before there was little or none; that the abnormal molecular changes going on in the blood are arrested; that electrical action results; and that the capillaries of the muscular system, the whole body over, are inducing to form heat or excite motion—the wheel of life is turning again, so lately on the point of stopping—for the muscles are now recognized as nothing but machines for the conversion of heat into motion; the determining and directing power residing in the nerve tissue; the fuel in the blood. It might be asked, Is it possible that the ammoniacal gas, under the influence of electric forces within the body, may be decomposed, that its hydrogen and the active oxygen in the blood may be condensed to form water? If so, the quantity of hydrogen contained in one half-drachm syringe would yield heat which, by transformation into muscular energy, would enable the patient to raise his own weight his own height. But, indeed, we know little of the molecular actions and re-actions taking place in living organisms, and it is difficult to say what is the destiny of ammonia thus introduced into the blood. But it is also as difficult to trace its functions in, and depositions from, the sap of plants; and yet we know that it stands in as important a relation to both plants and animals as heat itself. It is the source of all the nitrogenous elements of both, the re-actions between which and the external forces constitute life. Thus much, however, we can say, *viz.*, that just as the sounds emanating from a musical box are the result of a force communicated from without, so are the signs of animation proceeding from a patient previously insensible, as in these cases, the result of a force communicated from without, potential in the syringe, active in the body.

The lessons we have learnt from those who have used this remedy, and have sent their cases for publication to me, are that a good battle must sometimes be maintained ere recovery ensues. As with every other remedy, the amount required must depend, be judged of, by the effect produced; the great fear is that too little, rather than too much, will be injected. *The greatest care should be used that none of the ammonia is spilled, or stouthing will follow;* but if the canula of the syringe be properly introduced, and the injection be forcibly made, so as to mix the ammonia immediately with the blood, I believe none will follow. A little inflammation may result, but what of that if the patient be saved?

As symptoms of recovery instantaneously follow the use of ammonia in this way, we are saved the prolonged anxiety attending former treatments.

Objections have been made to the value of this treatment, on the supposition that Australian snakes are not venomous, or at least not dangerously so. Now, the cases brought forward to-night are a sufficient refutation of such errors. I find, from public records, that in some instances our snakes are as dangerous as those of India, and certainly quite as deadly as the rattlesnake. Thus, Underwood, a snake-charmer, was bitten at 7-30 P. M., and was dead by 8-3 P. M.; this is in one hour. Cartwright, another exhibitor of snakes, was bitten some time after 3 P. M.; by 3-30 P. M. he was insensible, with fixed, dilated pupils, and at 4 o'clock was dead; that is, within one hour. One case has been communicated to me by Mr. Casey, Surgeon, of Melbourne, of death within half-an-hour. There are many cases on record of death considerably within twelve hours, and to live beyond twenty-four hours is rare—that is, when the case ends fatally. And, indeed, except in size and length of fangs and quantity of poison, the cobra differs little from our tiger-snake (*Hoplocephalus curtus*), which, like the cobra, erects itself, dilates the neck, and, in confinement or at bay, is very vicious. *Hoplocephalus superbis*, another beautiful species, is exceedingly dangerous. This is popularly called the diamond-snake, just as in many parts the tiger-snake is called the carpet-snake; but both the true diamond and carpet snakes are harmless. Next, we have the common brown-snake (*Diemenia superciliosa*), which, although it does not expand the neck like the cobra, is yet, according to Professor M'Coy, in size and structural affinity closely allied to it. The bite is very deadly. The black-snake (*Pseudechis porphyriacus*) is also very common in some parts and very deadly. It, according to Mr. Gerard Kreft, of Sydney, "raises about two feet of its body off the ground, flattens out the neck like a cobra, and then darts at its prey or enemy." The same authority states that animals, such as dogs and goats, die usually within one hour from the bite of any of the above species. I have experimented chiefly with the tiger-snake (*Hoplocephalus curtus*) and have obtained the same results; but in one instance one of my tiger-snakes killed a dog in seven minutes. I have inoculated with the poison of all but the black-snake, and find them equally deadly.

Further, I feel certain, from my own actual experiments, that equal amounts of poison from either American, Indian, or Australian snakes are equally pernicious, if introduced into the blood. Thanks to Dr. Weir Mitchell, of Philadelphia, whose essay* should be read by all students of this subject; I have examined minutely rattlesnake poison, I find tiger-snake

* "Researches upon the Poison of the Rattlesnake"—Smithsonian Contributions to Knowledge, vol. xii.

poison exactly like it, acting similarly in the presence of the following agents, *viz.*, nitric acid, hydrochloric acid, sulphuric acid, acetic acid, tannic acid, ammonia, and alcohol. Both cobra and rattlesnake poisons act similarly on the blood; the same fluidity results, with the same *post mortem* production of multitudes of large and maculated white cells. This I have repeatedly verified; and if others cannot see these enlarged cells, it is no fault of mine. I have shown them to many who could not see them, while they were all the time under their eye, and yet many were good microscopists. I find also that, by inoculation, dogs die as rapidly from tiger-snake poison as from either of the other two; but the local symptoms are from the cobra and rattlesnake bites severer than from that of our Australian snakes. The general symptoms, however, are the same. Of the man bitten a few years past by a large cobra in Melbourne, Mr. Fitzgerald says:—"Five hours after the accident, I found him in a state of stupor; pupils dilated; the extremities and body were colder than natural; the power of speech was lost." Now, these are the symptoms of nearly all the cases detailed this evening, which symptoms were dissipated immediately on the injection of ammonia. I do not say they will be similarly dissipated in every case of cobra poisoning, or even of tiger-snake poisoning; but in the majority of cases it may be expected that they will, for what has happened seventeen times in Victoria, may certainly happen as many times again, or oftener, in India or in America. As yet I have seen no account of the injection of ammonia into the veins of men in India. In London, Dr. Tyler Smith used it with the best effects in puerperal fever (blood-poisoning).

Such, Sir, are the observations I have found it my duty to address to this Society. Much more I might have said, but I have limited myself principally to a detail of cases which, I believe, cannot be controverted; and I have to thank those gentlemen who have so kindly and fully communicated to me facts upon which this paper is based, and I sincerely hope, when this is read by them in their scattered and isolated districts, it may be to them a satisfaction.

In the discussion which followed,

The PRESIDENT said, that, for some reason or other, Professor Halford had scarcely alluded to the article in the *Lancet*, in reply to which, as they had been informed by circular, he had prepared his paper. He, the President, nevertheless, considered it his duty to make a few remarks in reference to the unjust manner in which Professor Halford had been treated by the leading medical journal of England. He was, indeed, unable to understand how a scientific organ of such standing as the *Lancet* should have admitted into its columns statements which it must have known, or ought to have known, to have been untrue from the beginning to end. The Professor was accused of having taken credit for two discoveries, one of which, *viz.*, ammonia, as an antidote to snake-bite, was no discovery at all, and the other of which (the method of treatment by injection) was one of the oldest methods of therapeutics. Professor Halford, however, had never asserted that ammonia was an antidote in snake-poisoning, in a chemical sense of the word, but he simply argued that, if ammonia had really a beneficial effect in these cases when taken by the mouth, as had been generally assumed, it would exert its influence upon the system much more quickly, and in a much higher degree, when introduced directly into the circulation. He, consequently, instituted a series of experiments on animals, and it was on the strength of the satisfactory results he obtained that a number of independent medical men, whose veracity nobody had a right to doubt, injected ammonia into the veins of patients suffering from snake-bite. Every one, without prejudice, who read the cases as reported by these gentlemen, could but arrive at the one conclusion, that in most of the cases life had been saved through the agency of the ammonia injections. They knew very well that transfusion of blood had been practised occasionally, and that water containing the saline constituents of the blood had been injected in cholera; but, hitherto, it was always understood that the injection of remedies directly into the circulation was fraught with the greatest danger. He, the President, was not aware that, previous to Professor Halford's experiments, ammonia had ever been injected into the veins of the human subject; that this, however, could be done not only with impunity, but in poisoning from the bite of snakes indigenous to these colonies, with most favourable results, was a fact for the knowledge of which society was indebted to Professor Halford. In the case of prussic acid poisoning, moreover, which occurred the previous week, the remarkable effect of the ammonia, although injected only a considerable time after the poison had been taken, strongly pointed to this mode of treatment in all those cases of poisoning in which stimulants were indicated.

MR. GANE said,—It is not my intention, Mr. President, to make any remarks on the nature of the action of ammonia when injected into the circulation.

Nevertheless, as one of the cases of snake-poisoning mentioned in Professor Halford's paper came under my care for treatment, I may be permitted to state to this Society a few particulars respecting it.

When brought to my house, four hours after the injury, the boy was completely insensible to the almost brutal treatment of his attendants. He was placed on a sofa in this insensible condition. The eyes were fixed, and the pupils considerably dilated. Two punctures were visible in the left leg, from each of which blood had been oozing. I now injected ten minims of the liquor ammonia fort., mixed with twenty of water. In ten minutes he answered questions, and in half-an-hour he walked into an adjoining room, and completely recovered.

Now, Sir, I can well understand that persons not belonging to the profession, on seeing a man dying (as they supposed), and in ten minutes hearing that man answer questions when put to him, and in another twenty minutes walking into an adjoining room, may well be excused if they stagger at their previous belief in the existence of the bite. But, on the other hand, when members of the medical profession (men trained to recognize symptoms and to

attach to them their value), after witnessing such a condition, and seeing for themselves the subsequent effective restoration by the injected ammonia, deny and denounce its efficiency, I simply should doubt their veracity; for I should consider that they were influenced by premeditated prejudice or determined obstinacy.

Dr. THOMAS said that Professor Halford had adduced a sufficient number of cases to establish the fact that ammonia may be injected into the veins of man and the lower animals with impunity, and, in cases of snake-bite, with the advantage of saving life. Transfusion, we all knew, was not new; no one pretended it was so—it had been practised for ages. He (Dr. T.) had, some twenty-five years ago, performed it in the case of a lady who was sinking from hæmorrhage. Some blood of an attendant was injected into the patient's vein. She rallied for a short time, but expired before the lapse of many hours.

Nearly all the cases recorded by Professor Halford were those of patients under the care of different medical men, living far and in opposite directions from each other. The results of the injection were in each case of great similarity, and were of great value. Such testimony was not that of a man "riding his hobby," but of a number of skilled, intelligent practitioners.

He was glad that Professor Halford was now of opinion that the globules, which he formerly considered as foreign cells, were white blood-corpuscles, altered in size according to the density of the fluid in which they floated. That was his (Dr. T.'s) opinion when he first examined the blood of dogs which had died from snake-poison, and he expressed it at the meeting of the Royal Society, when the Professor read his first paper on the subject.

There was one remark he should wish to make. It seemed to him that snakes were more numerous now, and their bite more fatal, than they were many years ago; for during his practice, extending from 1839 to 1852, which was very extensive, he was not aware, at the very outside, of more than half-a-dozen cases, and not one had a fatal termination. "The few whom he attended, he recommended stiff and frequent doses of brandy until intoxication was induced. Could the increase be attributed to the extinction of the black race, and the disappearance of the laughing-jacks from the populated districts.

He, for one, was not aware that ammonia had been injected into the veins before the Professor had done so, and he thought that great credit was due to Professor Halford for having instituted a theory which so many medical men had reduced so successfully into practice. Soubciran, in 1832, discovered chloroform, but Professor Simpson discovered its anæsthetic properties. Ammonia had long ago been discovered, but only Professor Halford found out that it could be injected into the blood, and that, when so applied, it counteracted the effects of snake-poisoning. Simpson everywhere ranked as a discoverer, and so must Halford.

Dr. McMILLAN remarked that, during the reading of this interesting paper, he had been struck by the remarkable degree of *uniformity* in the results obtained by the injection of ammonia into the veins in cases of snake-bite; and he considered that this circumstance alone enhanced the value of the testimony, and should go far to convince, even the most sceptical, as to the efficacy of this remedy when applied in the manner proposed by Dr. Halford. Dr. McMillan further remarked that, in connection with this subject, it might be well to estimate more accurately the therapeutic value of alcoholic stimulants when exhibited as a remedy in snake-bite. It had been shown by Dr. Halford that when the circulation was languid, and the nervous system prostrated by the shock, that alcoholic fluids were not absorbed, but that they remained accumulated in the stomach and intestines. Hitherto, people had been accustomed to trust very much to stimulants of this class; and if it could be shown that they possessed comparatively little value in arresting the fatal tendency of the snake virus, it might lead to a more prompt and general adoption of that which had alone proved worthy of confidence as a remedy in snake-bite. We all remembered that in our class-teachings on this subject, much stress used to be laid on the importance of *topical* treatment. We were told to excise the part; to make an incision, and cause the current of blood to flow outwards, that it might carry the poison with it. We were even told that we might apply our mouths and suck the part; with the same end in view, to apply ammonia to the wound, nitrate of silver, &c. It appeared, however, from the evidence adduced in this paper, as well as from the numerous experiments made by Professor Halford, that the poison entered the current of the circulation with such rapidity as to render all local treatment vain and useless.

In reply, Professor HALFORD stated that he could not enter into controversy with anonymous writers who were either untruthful or ignorant. He had neither the time nor the inclination to do so. The subject was one in which no disguise was required. A great series of experiments on apparently dying people had been done all over the colony at his suggestion, and with remarkable success. He had felt all this time on his trial; for had the results been different—had death in any one case been attributable to the injection of ammonia—there would not have been wanting those to upbraid him. Nothing but a continued series of experiments had led him to suggest this treatment and he had done it conscientiously, and, therefore, fearlessly; at the same time, he was aware that it had struck the majority of medical men as a most dangerous and unwarrantable proceeding. To throw into a vein a fluid too caustic to spill upon the tissues or put into the mouth seemed madness. He had never said that ammonia destroyed the poison; on the contrary, he had long ago stated in the *Argus* that, when the strongest ammonia was added to snake-poison, and the mixture injected beneath the skin of a dog, all the symptoms of snake-poisoning resulted as regularly as if the poison had been untouched. Dr. Weir Mitchell had previously found the same to be true of the poison of a rattlesnake.

As regarded the exhibition of spirits, he did not believe that, when the dose of poison was large, they *could* act beneficially. They were either rejected, *i. e.*, vomited, or, on account of the depressed condition of the circulation, not absorbed. He had heard many say, "Give spirits so as to make the patient drunk; if you can do this, he is saved; if you cannot, he will die." To his mind, this proved that, in the case of patients getting drunk, the spirits were absorbed, and therefore the cases not so dangerous from the commencement, and doubtless the spirits were beneficial. But when the patient could not be made drunk, the original danger was greater, and no absorption of the spirits took place. It had been in such cases that the injection of ammonia was so serviceable, urging on the stagnating streams of life, and leading to recovery. Dr. McMillan had somewhat misunderstood him as to the value of excision. True, if the poison had entered the circulation, little or no good could result from local treatment; but in the majority of cases, time elapsed before the virus entered the blood, for all punctures were not directly into the veins. Therefore, in all cases, cut out the part at once, rather than neglect it. A glance at Dr. Dowling's case, and at many others which were recorded, would show this. He said, "Don't give the poison a chance; if possible, get rid of it at once, rather than fight it afterwards with ammonia or any other remedy." This was clearly our duty.

In conclusion, he hoped the profession would remember what he had recorded in the *Medical Journal* of last November, *viz*, the facility and safety with which the iodide and bromide of ammonium and drachm doses of sulphurous acid could be thrown directly into the veins. He had also injected as much as four grains of pure carbolic acid, dissolved in thirty drops of glycerine, into the blood of dogs, and repeated it several times. Each injection was followed by clonic spasms, severe or mild, in proportion to the dose used, but soon passing off, and perfect health remaining. Those who believe in the germs of disease being in the blood, and that carbolic or sulphurous acid could destroy them, might think over these facts.

DR. AUBREY BOWEN, in proposing a vote of thanks, remarked that Dr. Halford, in defending himself from the unfair and somewhat personal attack made upon him in the *Lancet*, was not only doing so for himself, but for by far the greater part of the medical profession in Victoria, who had in a very marked manner concurred in giving due credit to Dr. Halford's exertions; and he considered that in recapitulating and reviewing his experiments on the influence of the direct injection of ammonia into the veins, he had most satisfactorily refuted the aspersions cast upon him.

APPENDIX.

Further Observations on Snake-poisoning. By GEORGE B. HALFORD, M. D., *Professor of Anatomy, Physiology, and Pathology in the University of Melbourne.*

[Read before the Royal Society of Victoria, 27th August 1868.]

In former papers communicated to this Society, I have dwelt particularly on the vast numbers of white cells seen in the blood after death from snake-poison. Subsequent and repeated observations have confirmed my original description equally of the growth, size, and maculated condition under the influence of magenta of these bodies; but lately my friend, Mr. Ralph, Surgeon of Kew, near Melbourne, has discovered a nearly similar condition of blood in animals poisoned by prussic acid. I have confirmed his observations, and most probably such bodies will be found, and arise, wherever after death coagulation of the blood does not take place. The whole subject, therefore, requires re-consideration. The facts are as I stated, but possibly have relations hitherto unknown to me.

From the first I stated these white cells arise in a structureless molecular matter, nucleus first, cell-wall after; and that in some manner they took the place of what is called fibrine; and, further, that the higher the thermometer for the time being, the more numerous and larger were these bodies.

The changes, therefore, take place when the blood is stagnant, but still retained within the veins.

Now, it is fortunate that I can direct the attention of this Society to some other phenomena in the growth of cells, as observed by Dr. Onimus and recorded in the *Journal de l'Anatomie et de la Physiologie*, 1867, and just received in Melbourne. He disbelieves in the doctrine of Virchow that *omnis cellulae cellula*, and holds that *cells arise in an amorphous blastema*.

This agreeing with the origin of the white cells I have described, let us follow Dr. Onimus in his experiments and conclusions.

The fluid from a recent blister was filtered so as to obtain a fluid containing no kind of form, neither white corpuscles nor epithelial scales. This fluid was enclosed in small tubes of goldbeater's-skin, and placed beneath the skin of a live rabbit.

After 2 hours—the serum was still transparent, although it had lost its primitive citrine colour. In it were seen a few white cells and granules.

After 24 hours—the serum was turbid, and contained a great quantity of white cells and granules.

After 36 hours—the serum was quite white, milky, and composed entirely of white cells and granules; the white cells having all the characteristics of white corpuscles of the blood.

Increase of animal temperature aided the production of the white cells.

No white cells nor any sort of anatomical element was formed in the serum of blisters, from which the fibrine had coagulated.

The presence of white cells artificially added to serum from which the fibrine had separated, had no effect in causing further development of white cells.

It is certain, therefore, there is some relation between the growth of white cells and those elements which by their separation from the liquor sanguinis constitute fibrine.

It will be remembered that I referred all the morbid agency to the microscopic germinal matter found in snake-venom, and not to any fully formed cells. Dr. Onimus observes that in infectious diseases, miasmatic or virulent changes are not found on the side of elements having form, but in the composition and properties of the plasma. The white cells of the virulent pus of a chancre resemble those from a healthy sore; it is in the serum that search must be made for the difference in the properties of the two prudent fluids.

It is, however, possible that with increased microscopic power, and more time for such labors, modifications of form and property may even be recognised in the molecular matter of serum.

Now, it has been maintained by some, and by Dr. Weir Mitchell, of Philadelphia, whose writings on snake-poisoning deserve, and have my willing respect, that nothing like germinal matter exists in snake venom. I cannot agree with him.

But I have always stated it exists in a very microscopic form, and that to this minute elementary germinal matter the activity of the venom is due. Since this was stated by me, similar conclusions have been arrived at by M. Chauveau (*Comptes Rendus*, 1868), of the nature of the vaccine virus, which he describes as consisting of—*first*, the serum, an albuminous fluid, holding the various soluble substances in solution; and, *secondly*, the solid elements, consisting of white cells and of elementary granules, both of which are suspended in the serum.

After separating the white cells, the remainder was as virulent as ever, and the clear serum was found to be harmless; but in the elementary granular matter dwelt the activity of the virus.

I hope this short and imperfect communication may induce others to think on the correlation of the animal poisons.

Experiments performed with the assistance of Drs. NEID and WOOLDRIDGE, to show the action of ammonia upon the central organ, and that it may not only be injected into the veins, but into the heart itself, without injurious effects, and also that it counteracts in a most powerful manner the action of snake-poisoning. Simpson was ranked as a discoverer, and Dr. McMeekin the actual influence of chloroform.

EXPERIMENT I.

A large young dog was got under the influence of chloroform; the front of the chest was removed, and artificial respiration maintained, chloroform being occasionally dropped into the bellows.

11-27 A. M.—Half a drachm of liq. ammoniæ B. P. sp. gr. 0.959 was injected into the left external jugular vein. The heart's action was at once accelerated, but soon settled down to steady pulsations.

11-35 A. M.—Half a drachm more was injected into the right ventricle. Immediate increase of the heart's action ensued. Consciousness returning, as evidenced by the reflex movements of the eye-lids, and by a withdrawing of the leg on pricking the foot. Pulsation powerful and steady.

11-45 A. M.—Completely conscious, struggling to get up. More chloroform was poured into the bellows. Soon became insensible again.

11-50 A. M.—Half a drachm was injected into the left ventricle. This was almost immediately followed by a contraction of all the muscles of the body, which soon subsided. Heart's pulsation very vigorous.

11-58 A. M.—Dog returning to consciousness; more chloroform poured into the bellows. Soon again insensible.

12 noon.—Half a drachm more injected into the left ventricle. The same increased pulsation, followed by slight universal spasm as before.

12-2 P. M.—Dog quite conscious and struggling; more chloroform poured into the bellows.

12-11 P. M.—Dog again conscious and struggling; more chloroform poured into the bellows.

12-13 P. M.—Again quite insensible, pupils dilated, &c.

12-17 P. M.—Half a drachm more ammonia was injected into the right ventricle. Heart pulsed forcibly, the same general spasm following.

12-22 P. M.—Dog again conscious; more chloroform by the bellows.

12-26 P. M.—The dog being again quite insensible, I injected half a drachm more into the right jugular vein. In ten seconds the heart's action was increased, the same general muscular spasm following.

12-33 P. M.—Quite conscious and struggling to get up; more chloroform in the bellows; soon again insensible.

12-36 P. M.—Half a drachm more injected into the left ventricle. Pulsations immediately increased, followed by the same general spasm, but in a milder degree.

12-40 P. M.—Heart's action powerful and steady; pulsations good all over the body.

12-43 P. M.—Dog again quite conscious; more chloroform given; soon insensible.

12-48 P. M.—One whole drachm was injected into the left ventricle. Heart's action immediately quickened, followed by the general spasm. Reflex action of eyelids returning.

12-57 P. M.—Dog quite conscious, and struggling hard to get up, he seeming to have as much vitality as ever, and a sufficient trial having been made, the heart was cut out, and an end put to the experiment.

On examining the cavities of the heart, there was not the least trace of irritation or inflammation, and the punctures through the muscular substance were scarcely visible. The vigour and persistence of the heart's contractions after removal from the body were greater than I had ever before witnessed.

EXPERIMENT II.

Another large dog was chloroformed, the front of the chest removed, and artificial respiration maintained for one hour and twenty minutes, during which time the heart's movements were carefully observed. As in the former case, the injection of the ammonia had the effect of continually rousing the dog from the full influence of the chloroform, necessitating always a further supply of the anæsthetic before another quantity of ammonia was used. In this dog both jugular veins once, the right ventricle once, and the left ventricle three times were injected with half-drachm doses of liq. ammonia B. P. sp. gr. 0.959. The results were precisely similar to those noticed in the other dog, *viz.*, immediate increase of the heart's pulsations, settling down into steady beats. The same muscular spasms followed by returning consciousness, and, lastly, the same absence of any visible injury to the heart's cavities or walls.

On the injection of ammonia into the veins. By G. B. HALFORD, M. D., F. R. C. P., Professor of Anatomy, Physiology, and Pathology in the Melbourne University.

On Wednesday evening, April 7, 1869, I detailed to the Medical Society of Victoria the results of some experiments I had performed, with the assistance of Dr. Neild and Mr. Wooldridge, showing that within one hour and a half as much as four drachms and a half of the liq. ammonia B. P. sp. gr. .959 might be injected into the veins, and even into the heart of dogs completely narcotised with chloroform, with the effect, at each injection of 30 minims, or even 60 minims, of restoring the animal to thorough consciousness and apparent original vigour. When the animals were subsequently killed, no injurious effect could be discovered in any organ of the body—the punctures into the ventricles even not being visible. I, therefore, suggested that in over-prolonged narcotism from chloroform, and in threatening syncope, the injection of ammonia might be used, in the case of syncope, by injecting into the external jugular, or with a proper instrument, into the heart itself.

My detractors in this colony have seized hold of a statement made by Dr. B. W. Richardson, of London, in a lecture printed in the *Medical Times and Gazette* of July 1870, which is as follows:—"It has been hoped to neutralise the physiological action of chloroform by injection of antidotes into the veins. I tried the injection of ammonia into the veins as far back as the year 1854, and, although the injection excited the heart, it did not offer any material advantages."

I had duly read this on receiving our journals last October, and should have let it pass unnoticed, had it not been recently used against me. I am bound now to examine and comment upon it carefully.

Now, as Dr. Richardson and myself have ever been the best of friends, and as he has no greater admirer than I, it becomes me to deal with this sentence with the utmost care; and in doing so I shall quote his own words of 1858, and show that what he then believed, and what I too believed, of the effects of ammonia on animal life, was error; and that, so far as I can find, his experiments of injecting ammonia into the veins, to counteract poisoning by chloroform, have never been published, and I think must really have been forgotten by himself in 1858. I have never heard of them. It will be seen further on why I should have heard of them. But I did not, and that it is which perplexes me, and makes so contradictory his published words of 1858 and 1870, seeing that in 1858 there was an absolute necessity for his alluding to the subject. But, so far as I can find in his writings, he is silent on this point, having only used a small quantity of ammonia to retain the fluidity of the blood during the operation of transfusion. In the appendix to his work, *On the Cause of the Coagulation of the Blood*, page 440, he says: "In cases where danger arises from the administration of chloroform, I have seen the patient made to breathe ammonia vapour, not as a mere excitant to respiration (for in this sense it may be used legitimately with due care), but as a supposed general restorative. As the effects of ammonia in a large dose are, however, the same as those of chloroform in their leading particulars, the free introduction of ammonia into the narcotised patient is the addition of one volatile narcotic to another volatile narcotic."

Nothing is here mentioned, it will be seen, of injecting ammonia into the veins. When ammonia really enters the blood it is not a volatile narcotic at all. The fact is, the inhalation of the vapour of ammonia, except extremely diluted, is incompatible with life, not because it enters the blood, but from its interference with the necessary respiratory changes needed in that fluid. Its action, as a sudden poison when given by the mouth, is due to its deleterious effects on the tissues, and very probably through direct continuous stimulation of the peripheral

twigs of the pneumogastric, causing the reflex opisthotonos mentioned by Dr. Richardson at page 113 of his work; for, most certainly, the dose that will produce death when given by the mouth will not produce it when thrown directly into the blood. Therefore, it must kill by its influences before it reaches the blood. This was the origin of my suggesting its direct administration in snake-poisoning, &c. It is the same in slow poisoning with ammonia; there are other elements to be considered besides the blood, which, the organs being healthy, is soon purified of any ammonia that may reach it. Of course, if, as at page 114, ammonia is given to a dog in doses of from five to twenty grains of the bicarbonate for upwards of a month, and for the last few days in increased frequency and dose, death will result, not from the presence of ammonia in the blood, but from impairment of function and destruction of tissues. The *post mortem* revealed it. I allude to these things because I wish my readers to understand the advantage that may result in some cases, by avoiding the ordinary portals to the blood-current, *viz.*, the lungs and stomach. Thus, seven-grain doses of carbolic acid, mixed with glycerine, I have thrown into the veins of dogs, this large dose being only followed by temporary clonic spasms, from which the animal soon recovers. Now, it would be impossible to give this by the mouth—it is an actual caustic. Again, more remarkable still, sulphurous acid cannot be given in any large dose by the mouth, and if given, most probably never reaches the blood, and yet, in the space of two hours, I have thrown as much as six fluid drachms of undiluted acid into the jugular and femoral veins of dogs, without causing the least distress. This may be regarded as a digression, but it very forcibly shows the advantage of the direct injection of certain remedies, as in the case of ammonia, over that by the mouth, and the different results that are produced.

I now proceed to extract entire, commencing at page 448 and ending at page 452 of the same work, the section which concerns me chiefly. I shall make no additions to, or subtractions from, it, merely introducing a few running remarks. The extract is headed in the work,—

Application of Ammonia to the Operation of Transfusion of Blood.

“Since the time when Lower first performed the experiment of transfusing the blood of one animal into the vessels of another (1866), and Denys, of Montpellier, gained unenviable notoriety for pushing this operation into practical operation with too much enthusiasm, it has been felt a difficulty in the steps of the operation to hold the drawn blood fluid for a time sufficiently long to secure its free transfusion into the animal body. It is true that several ingenious instruments have been devised, which in some measure meet the difficulty, but not effectually. In this section I shall show that the cautious addition of ammonia to the drawn blood answers every practical purpose for sustaining fluidity, and for simplifying the operation.

“EXPERIMENT CCCCVII.—TRANSFUSION OF BLOOD.—On one occasion I had in my laboratory twenty ounces of sheep’s blood held fluid by a solution of five grains of ammonia in a drachm of water. The blood had been kept fluid, for several hours, in a closely stoppered bottle. I had placed a dog under the influence of chloroform for an intended operation, when I perceived that the heart was stopping from the effect of the narcotic. I instantly laid open the external jugular vein, and blood escaped copiously; but, nevertheless, death took place. Prevented from following out the original operation, I thought it would be interesting to see how the sheep’s blood would run in the vessels of this animal. I, therefore, warmed a portion of it to 98°, put a tube into the jugular vein, and injected four ounces with the greatest ease. I then laid bare the common carotid, and performed the same experiment with equal facility. The facility with which the operation was done suggested the plan of transfusing blood into a living animal after a similar manner. I have now performed this operation several times with excellent results. As examples, I shall give two representative experiments; the one showing the dangers which are to be avoided; the other, the operation as it may be safely practised.

“EXPERIMENT CCCCVIII.—TRANSFUSION OF BLOOD.—I laid bare the jugular vein of a healthy dog, and drew from it into an evaporating dish two ounces of blood, in which were four grains of ammonia, with a drachm of water. The blood was set aside for a brief interval. Next, I drew two other ounces of blood from the same vein into another evaporating dish, in which there was no ammonia, and set this aside that it might coagulate, the vein being meantime secured above the opening by a firm ligature. When the blood in the second cup had firmly coagulated, an event which occurred about four minutes after its abstraction, I drew into a two-ounce syringe the blood charged with ammonia, and which was still quite fluid, and introducing into the vein the nozzle of the syringe, threw in slowly the ammoniated blood. The syringe was withdrawn, and the vein was tied below the opening. For a few moments after the injection there was but little change; then suddenly the action of the heart became so bounding and intense that it seemed to heave up the chest-wall. Almost coincident with this, general tetanic spasms occurred, with rigid opisthotonos; and, in fine, symptoms so strictly analogous to those produced by strychnia, that the action of the two agents could not have been distinguished by a stranger ignorant of the cause of the symptoms. The chest was fixed, and death took place in four minutes. An hour after death the body was opened. The right side of the heart and the whole venous system were charged to distension with dark blood, which was perfectly fluid, and remained so for three hours on exposure to the air. In the left side there was also blood, of a bright red colour, and fluid. Set aside, this arterial blood coagulated in fifteen minutes on exposure to the air at a temperature of 70°. The corpuscles were very much modified. In this experiment, the first of a series on a living animal, the ammonia was added in a poisonous dose, and the results were strikingly marked. The

analogy between the actions of ammonia and strychnia is so striking, when the former is thus thrown in excess into the circulation, that I cannot dwell too strongly on the fact, since it may have an ultimate bearing on the mode in which strychnia destroys life, and the means to be adopted in cases where this alkaloid is fatally administered. In an experiment in which Dr. Halford lent me his assistance, the same results were observed, under the same circumstances."

In this passage, written in 1858, we have Dr. Richardson's assertion, which at the time was assented to by myself, that four grains of ammonia,* mixed with two ounces of blood and slowly injected into the circulation, were as intensely poisonous as a similar quantity of strychnia. This, he says, is a point on which he cannot too strongly dwell. How much, then, did he inject into the veins, in 1854, to resuscitate in chloroform poisoning? This is, to me, the puzzling question. If he had injected four grains of carbonate of ammonia, dissolved in water, into the veins in 1854, he would not have found it produce death like strychnia, and not having found it, he would not have attributed the death in the experiment in 1858 to the ammonia, but sought for it in the manner of injecting the somewhat altered or altering blood into the heart. For I found, in 1868, very much to my astonishment at first, that four grains of carbonate of ammonia, in a sufficient quantity of water to just dissolve it, might be injected into the jugular vein of dogs without producing any injurious effect whatever. I have thrown ten grains into the veins in the space of five minutes without the least bad symptom following. But was it the liquor ammonia which Dr. Richardson used in 1854? Let us see how he speaks of this preparation in 1858.

"EXPERIMENT CCCCIX.—TRANSFUSION OF BLOOD.—I laid bare the jugular vein of a healthy terrier-dog, and drew off two ounces of blood into an evaporating dish, containing ~~the~~ ^{two} minims of liquor ammonia, sp. gr. .880, with thirty minims of water. Other two ounces of blood were drawn off into another dish containing no ammonia, and set aside to coagulate. The vein meantime was tied above the opening. After four minutes the blood in the second cup had firmly coagulated. The ammoniated blood was still completely fluid. After five minutes more had elapsed, the nozzle of the injecting syringe was introduced into the vein of the animal, and the ammoniated blood was injected. Dr. Halford, who managed the syringe, took great care to introduce the syringe slowly, and a full quarter of an hour was taken up in this way. Then the syringe was withdrawn, and the vein was tied beneath the opening. In the course of this operation, not a dangerous symptom supervened. The blood ran easily. As it first reached the heart, that organ, which had been flagging, beat with a little more force, and sustained this activity without abnormal increase. The animal recovered without the slightest indication of injury, and it is alive and well now.

"A small portion of the ammoniated blood left in the evaporating dish was observed to coagulate thirty-five minutes after the blood was first drawn; it formed into a firm clot. The temperature of the day was 75° Fah.

"In performing the operation of transfusion by this simple means in the human subject, in the extreme cases adapted to the operation, a few precautions are required. The amount of ammonia, first added to the blood about to be transfused, should not exceed two minims of the stronger liquor ammonia to the ounce of blood; for it is quite easy, if a diluted solution of the ammonia be ready at hand, to add a little more in course of operation if the blood should show a tendency to coagulate. The ammonia diluted with water, in the proportion of one part of the alkali to ten of water, should be placed in the vessel in which the blood is caught from the vein; and the blood as it falls into the vessel should at first be very gently stirred. When sufficient blood is obtained, and the injecting syringe is at work, the injection should be made with the greatest care and slowness. Indeed, scarcely any pressure on the piston is required, and there is no cause for haste. This is a great advantage, for I take it, one of the dangers of transfusion is the rapid distension of an empty and enfeebled heart with a full charge of blood. Harvey, whose shrewdness seems to have let nothing in his way escape observation, refers to the syncope which sometimes occurs in bleeding, not as a result of the hemorrhage, but on the removal of the fillet: or, as the vulgar say, 'from the turning of the blood.' Harvey thought that this occurred from the coldness of the blood, which retreated on the heart, but I think that I have demonstrated by experiment in another place, that the effect is due to the sudden load of blood thrown upon the enfeebled organ.

"With these precautions the operation of transfusion, by the process I have described, is at once as simple as it is effectual; and in sinking from loss of blood it has this advantage, that to the new charge of blood there is added an agent having the property of stimulating the flagging heart into renewed force and activity."

I have thus extracted all that Dr. Richardson has said on this subject, and I now ask, if he thus feared the introduction of any more than two or three drops of liquor ammonia into the circulation in 1858, how much did he use in 1854 in attempting to resuscitate from chloroform. He could not have used more than three or four drops, or he would not have thus feared this quantity in 1858. For assuredly had he used this quantity, or more, he would have given benefit rather than have done harm. Liquor ammonia is not the strychnoid poison that he imagined it was in 1858, and he would have known this in 1854 if he had used it at that date to restore from chloroform. I have thrown repeatedly from ten to twenty minims into the veins of dogs without harm; and the human subject has been pretty freely injected with it in this colony. Thus, of the same preparation, viz., the liquor ammonia fortior. sp. gr. .880,

* It was the carbonate of ammonia.—G. B. H.

Dr. Jackson and Cotter injected twenty-five minims within an hour or so, with recovery from the syncope and vomiting of snake-poisoning.

Mr. Gillbee used forty minims in a case of narcotism and syncope from chloroform poisoning, with the effect of restoring the man to consciousness and to his home, where he lived thirty-two hours, and then succumbed to an attack of *delirium tremens*, from which his liquor-steeped body never recovered. In this case nothing but good symptoms followed each injection.

Dr. Dowling injected sixty minims in a severe case of snake-poisoning, and heroically saved his man.

Therefore, if Dr. Richardson was so fearful of a few drops in 1858, could he have used it to restore from chloroform, as he says, in 1854? I think he must be making a mistake, deceiving himself in fact. I beg of him, if he have the notes of the experiments by him, to publish them. At any rate, the statement made in his lecture in 1870 is apparently so contradicted by his written words of 1858, and by all that I remember, as to need some explanation. Nothing in Dr. Richardson's work, or in his edition of Snow's work on chloroform, that I can find, suggests the injection of ammonia for any purpose, the only use he made of it being to hold the blood fluid, at the same time regarding it as a poison analogous to strychnia.

Dr. Fayerer, who was consulted on the subject by the Government of Bengal, observed as follows:—

"I have repeatedly tested the efficacy of liquor ammonia used hypodermically with the view of counteracting the action of the virus of the deadly snakes of India on the lower animals, and that the result has been to show that it has no power of saving life.

Snakebites are of different degrees of severity, and represents the inoculation of varying quantities of the virus according to circumstances. A large number of those bitten recovers, and of these the recovery may, no doubt, be aided by medical treatment, and probably ammonia is one of the most useful therapeutic agents for the purpose, and as such I advocate its administration.

In the more severe cases (and there are probably over 20,000 deaths from such annually in India), where a vigorous snake, say a cobra, has fully inoculated its poison, I fear all drugs are alike impotent. I am unable to believe, from anything I have yet seen, that an antidote, as the word is conventionally understood, is, or is likely to be, known.

I have read Dr. Halford's views and experiments with much interest as those of a man well-known to science, and I regret that I have been unable to arrive at similar conclusions with reference to the hypodermic injections of ammonia.

My views, so far as they go, are derived from actual experiments carefully and repeatedly performed on animals, with the aid of men well qualified to form opinion or detect errors in what they saw. The conclusions arrived at are recorded in the enclosed pamphlets, which I beg you will submit for His Honor's perusal. As yet I have seen no reason for modifying them.

I have had no opportunity of testing the efficacy of ammonia hypodermically injected in human beings, badly bitten by deadly snakes; but I see no reason for supposing that it would be more efficacious in man in really severe bites than in the lower mammalia, on whom the effects of the poison are similar."

SUMMARY OF EXPERIMENTS ON THE INFLUENCE OF SNAKE POISON.

By J. FAYERER, M. D., C. S. I.

(Re-published from the Indian Medical Gazette.)

THE experiments, of which this is a summary, were commenced in October 1867, and have been continued as regularly since, at such intervals, as time and other and more important avocations permitted. My object has been to determine by actual observation the effect on life of the poison of the venomous snakes of this country, and to test the value of remedies, whether internal or external.

So many absurd ideas on the subject prevail that it is desirable to know the real truth, not less with reference to the actual *modus operandi* of the poison, than to the value of the many vaunted antidotes. The results, I regret to say, tend to show that, in the present state of our knowledge, we can do little to counteract or neutralize the action of the poison; but what may be expected from treatment I have endeavoured to show.

As to antidotes, I could speak with reserve on the subject of possible future discoveries; my experience does not encourage me to hope that we shall discover anything that can be regarded as an antidote, such as is generally meant by that term. But, considering the imperfection of our knowledge on this and kindred subjects, I would do nought to deter or discourage others from further investigation.

My personal experience is derived from the action of the poison in the lower animals, and a few cases in man; the antagonism of the venom to the vital forces is shown in one as well as in the other, and is no doubt subject to the same laws. The deductions from one are applicable to the other.

The greatest care has been observed in all the experiments, and most of them have been often repeated to exclude, as far as possible, sources of error, and to obviate generalization from insufficient data.

Almost every experiment has been witnessed by competent observers, to whom I am much indebted for their assistance, and for the additional value which their presence attaches to the validity of what was done.

The object of investigation has been the simple truth. I can safely say there was neither foregone conclusion to maintain, nor theory either to support or oppose.

The snakes with which the experiments have been conducted were—

The varieties of *Naja Tripudians* or Cobra.

The *Ophiophagus Elaps* or Hamadryad.

The *Bungarus Fasciatus* or Sankni.

The *Bungarus Cœruleus* or Krait.

Some of the *Hydrophidæ*.

The *Daboia Russellii*.

The *Echis Carinata*.

The *Trimeresurus Monticola*.

And in the case of the *Calophidæ* and the other *Crotalidæ*, I have referred to the experiments of others, not having had opportunity of testing them myself.

The living creatures experimented on have been the ox, horse, goat, pig, dog, cat, civet, mongoose, rabbit, rat, fowls, kites, herons, fish, innocent snakes, poisonous snakes, lizards, frogs, toads, snails.

The symptoms produced by the poison both constitutionally and locally have been carefully noted. The state of the blood has also been examined, specially with reference to structural changes—and for this part of the investigation I have been much indebted to Professors Partridge, Ewart, W. Palmer, J. Anderson, and Dr. Douglas Cunningham.

In point of relative deadliness I should be inclined to consider that the cobra, ophiophagus, and daboia are very nearly on a par. They are quite capable of destroying a full grown dog in half an hour, sometimes in much less time; and very frequently I believe man has succumbed within an equally short period, though generally the time is much longer.

The *bungarus cœruleus* is, I believe, just as deadly, but apparently does not kill quite so quickly. The *bungarus fasciatus* is less fatal, and kills less quickly than the *bungarus cœruleus*. The *echis*, if one may credit the reports from Scinde, and they are confirmed, to a certain extent, by Major MacMahon, Deputy Commissioner of Delhi, is also a very deadly snake. It destroys life rapidly in small animals; but from its small size, it is perhaps less likely to be fatal to man, though from what I have seen of the effects of its poison on pigeons, fowls, and dogs, I should regard it with peculiar dread.

Of the *hydrophidæ* less is known; but the few experiments I have performed, and those by Mr. Stewart, prove that they are very fatal, and I should think human life would be in great danger from their bite.

The *calophidæ* and *crotalidæ* of Hindustan are certainly not so deadly as those I have mentioned, and though capable of inflicting a painful and, in some instances, no doubt, a dangerous bite, they are not so much dreaded as the other snakes.

There are differences in the symptoms produced by the poisonous bites of the different *thanatophidia*, but none of any great physiological or pathological import. In some cases convulsions are more marked, and in others death is preceded by a more marked appearance of lethargy. In some, as in those of the *echis*, the local symptoms are peculiarly severe; in others less so. But the differences are more of degree than of kind. They all point to exhaustion and paralysis of the nerve centres—the sources of the origin of vital force—every function fails rapidly, and vitality is soon extinct.

Local paralysis of the bitten part, great depression, faintness, exhaustion, nausea, vomiting, hæmorrhage, relaxation of the sphincters, involuntary evacuation, not unfrequently of a sanguineous or muco-sanguineous character, precede the complete loss of consciousness, and after this convulsions occur just before life ceases.

The *post-mortem* appearances frequently reveal simply nothing except the marks of the fangs and the slight ecchymosis about them; or if the creature have survived some hours, infiltration, and, perhaps, incipient decomposition of the tissues. The lungs are not generally congested, the heart is not generally overloaded, the viscera look natural enough, death is not traceable to special disturbance of any one great function, such as respiration, and the blood, after death, in the cases of the lower animals, certainly, and if in them, why not in man,* nearly always coagulates firmly on removal from the body, after death, from poisoning by the calubrine snakes. But in death by viper poisoning it remains permanently fluid. The cause of this I am quite unable to explain, but there can be no doubt of the facts as regards the lower animals, for they have been proved by often repeated experiments.

From experiment, I have arrived at the following conclusions.—Snake poison acts with most vigor on the warm-blooded animals; birds succumb very rapidly; a vigorous snake can destroy a fowl in a few seconds.

* It is to be noted that in most recorded *post-mortem* examinations of human beings, who have died from snake bite (whether colubrine or viperine), the blood is noted to have remained fluid after death. I cannot reconcile this with the condition of the blood in animals, which is, as I have stated, coagulable after death, from colubrine poisoning, found after death, from viperine poisoning. Further examination is needed.

The power of resistance is generally in relation to the size of the animal, though not altogether so; cats, for example, resist the influence of the poison almost as long as dogs three or four times their size.

The cold-blooded animals also succumb to the poison, but less rapidly. Fish non-venomous snakes, mollusca, all die. So far as I can decide from experience the poisonous snakes are not affected by their own poison, *i. e.*, a cobra may bite itself, or another cobra, and with no evil result.

The less are probably affected by the more poisonous snakes, *e. g.*, the bungarus seem to be affected by cobra poison, though slowly.

It is possible that they can all to some extent affect each other, though infinitely less than other animals. In many of the various experiments I have performed, the cobra, daboia, and krait did not appear to be able to poison themselves or each other. Some of the experiments render this doubtful, and seem to show that a cobra or daboia may poison a krait, or *vice versa*, but that they escape more frequently than they suffer.

Snake poison is absorbed through delicate membranes. It is deadly when applied to a mucous or serous membrane, to the stomach, or the conjunctiva. The idea that it is only capable of absorption by direct injection into the blood is erroneous.

The blood of animals poisoned to death by the colubrine snakes coagulates after death. That of animals poisoned by the viperidae remains permanently fluid.

The bodies of animals poisoned by snakes are eaten with impunity by man and animals. I have had repeated proofs of this. The fowls and pigeons killed in my experiments were always taken away and eaten by the sweepers who were present, and who sought them greedily. They were not unfrequently given to dogs or cats; no harm followed.

The blood of an animal dead from snake poisoning is itself poisonous; if injected into another animal, it destroys life. This shows the intensity of the poison; a drop or two diluted with the blood of a fowl or animal renders the whole poisonous. Venomous snakes, though not at all, or very slightly, affected by snake poison, are very susceptible to other poisons, such as strychnine or carbolic acid. The latter destroys them very rapidly, and they seem to regard it with peculiar aversion. Poisonous snakes are not, as a general rule, very aggressive, except perhaps the echis. They seek to be left in quiet, to be let alone. They bite only if disturbed or irritated, and even then they often will not bite, but make one or two strikes at the enemy as if to frighten it.

In my experiments, I had always the greatest difficulty to get the cobra, krait, or daboia to bite voluntarily. An animal may remain in a cage or box with a cobra or daboia a very long time before it is injured, and perhaps, after all, it is taken out untouched, even after trampling on and bruising the snake, in its efforts to escape from its enemy, which is as much frightened as itself. There is much hissing and demonstration of attack, but frequently nothing done. If pressed and overtaxed, they bite at last, and if they insert their fangs and retain their hold, the bite is generally fatal.

The echis, however, will strike and mortally wound a fowl or small animal directly it approaches it, and its dart is so rapid that it is scarcely seen.

Snakes frequently strike and even wound without poisoning, or very slightly so. The fang merely scratches and makes a tear, but if inserted and retained for a second the poisonous bite has then been inflicted. Of course, any abrasion or scratch, however trivial, may be dangerous, as some of the virus may be inoculated or shed over it, probably not enough to kill, but sufficient to cause dangerous symptoms.

A snake that has bitten often, or that has very recently eaten, or that has been long in confinement without food, is less dangerous than others; its bite may be almost harmless, though not always so: a daboia that lived a whole year in a cage without food was deadly a few days before its death.

The popular notions as to the effects of the so-called antidotes are, I believe, erroneous; such for the most part being utterly powerless or inert. The ligature, excision or cautery, if applied in time, are the only rational remedies that can be of avail in a really poisonous bite. Others are recovered from by the inherent vigor of the person bitten, aided by rational treatment, support, stimulants, and possibly to some extent by arsenic, iodine, bromine, or potas, or others of the many remedies recommended, but as antidotes in the ordinary acceptation of the term even these, I fear, are no better than others.

The poisonous snakes when they either shed or lose by accident their fangs, regain new ones in from a few days to a month or six weeks. An echis was re-furnished with fangs, firmly anchored to the maxillary bone, on the third day after the removal of the former ones. If the whole mucous capsule be removed, and the maxillary bone injured in extracting the fangs, the reserve teeth already developed and the germs are also destroyed, and no new fangs are reproduced. This is often done by the snake-catchers, but when imperfectly, and the reserve fangs and germs not destroyed, fatal accidents have occurred from the unexpected re-appearance of fangs.

Snakes cast their epidermis frequently; the cobra and krait once or twice in a month, but the echis I have kept for three months without its changing its skin. Snakes will live months without food or water. A daboia lived for one year without food. It moulted frequently, became very thin, but it was active and poisonous to the last.

I conclude the summary by remarking that I feel thankful that I have brought this long series of experiments to a conclusion without any accident of a serious nature to those con-

cerned in them. The constant manipulation of excited and vicious venomous snakes is a service of danger, and one in which we could hardly expect to be long engaged without some casualty. I am happy to say that only on two occasions was there any cause for anxiety. In the first, one of my assistants had a small quantity of cobra poison projected into the eye. Immediate abluition and careful avoidance of rubbing removed it, leaving only a temporary congestion and weakness of eye.

In the second case my principal snake-man was bitten by an echis in the thumb; immediate excision and cauterization of the part was had recourse to, and no evil results followed.

Experiments on the effects of the poison of the Hydrophidae, by W. D. STEWART, Esq., Civil Surgeon of Pooree, communicated by Dr. J. Fayer.

EXPERIMENT No. 1.

9th May, 1870, at 5-45 P. M.—The thigh of a half-grown fowl, cleaned of feathers, was presented to the sea snake. It bit rapidly two or three times, and drew blood. After being bitten, the fowl crouched on its bent legs and never stood again.

5-49.—Pupils dilated; shook its head as if excited; then began to droop; eyelids closing; beak resting on the ground.

5-50.—Raising its beak up and down; head rotating from side to side; sitting all the time; no convulsions.

5-55.—Lying on its side quite powerless.

5-59.—Dead in 14 minutes.

With a lens no punctures could be made out; even scratches could hardly be seen at seat of bite; blood dark, coagulated firmly.

From Mr. Stewart's description, I imagine the snake was *H. Cyanocincta*. In speaking of its fangs, he says:—"Fangs about two-thirds of a line long, with a double curve, first bent forwards at base, then backwards, before terminating in its point. Poison groove extends only from the four-fifth on anterior aspect.

EXPERIMENT No. 2.

10th June, 1870.—Present: Mr. Thomson, C. S., and Mr. Stewart.

A long thin-necked snake, with white pea-sized spots on side of neck; unable to bite. Poison gland removed, and inserted at 11 A. M. into a wound made in the thigh of a half-grown fowl.

11-12 P. M.—No apparent result.

3 P. M.—It was observed to be drooping and unable to move.

6 P. M.—Dead.

This snake was most probably *H. Chloris*.

EXPERIMENT No. 3.

July 1st.—A similar snake was obtained on 1st July. It was torpid, but the trial was made by pressing the jaws firmly over the thigh of a fowl.

No result.

EXPERIMENT No. 4.

June 20th.—A *Pelamis Bicolor*, torpid and unable to bite. Mouth opened, and jaws made to close firmly over fleshy part of a fowl's thigh.

No result.

EXPERIMENT No. 5.

June 29th.—A sea snake (probably *H. Cyanocincta*) was made to close its jaws on a chicken's thigh at 6 A. M., with firm pressure, as it could not bite voluntarily.

9 A. M.—Lame, crouched.

3 P. M.—Eye-lids half-closed; head drooping; respiration gasping, during which beak opens, and a crowing sound occurs; feathers ruffled; purged frequently.

June 30th.—Lying half-dead; refuses food; mark of bite bluish colour.

July 1st.—Recovered and able to move about; it remained well.

EXPERIMENT No. 6.

June 30th.—A *Pelamis Bicolor*, caught fresh in a hand net. It was quite lively, and able to bite.

A small fowl was bitten by it at 6-26 A. M.; the wound scarcely a scratch.

7 A. M.—Crouching, drooping.

8 A. M.—Beak rising and falling.

9 A. M.—Insensible.

9-50 A. M.—Quite dead.

Blood fluid after death.

EXPERIMENT No. 7.

July 5th, 1870.—A sea snake, a new species, allied to *H. Hardwickii*, bit a full-sized fowl in the thigh at 8-30 A. M. The marks of the bite were distinct.

8-34.—Fowl seated.

8-35.—Drooping; eyes closing; rotating the head on the beak in a sitting posture.

8-38.—Convulsed ; head resting on ground.

8-42.—Continued convulsions

8-42.—Legs thrown backwards in final spasm ; tail spread out ; quite dead in 17 minutes. Blood coagulated after death.

EXPERIMENT No. 8.

July 22nd.—The same snake was tried on a dog, but it was too feeble to bite: its jaws were pressed firmly on the inner part of the thigh. No evil result to the dog.

EXPERIMENT No. 9.

Hydrophis Cyanocincta, 4 feet long, bit a half-grown fowl voluntarily in the thigh twice or thrice, drawing blood, and leaving slight ecchymosis at 9-37.

9-40.—Fowl drooping ; eyes closing ; head resting on beak.

9-41.—Fell over on its side.

9-42.—Convulsed.

9-46.—Dead in 9 minutes.

EXPERIMENT No. 10.

The same snake bit a pariah dog, twice on the thigh, at 4-40 p. m.

5-20.—Dog restive, salivated, burrowing its muzzle in the sand.

5-25.—Seated, body thrown forwards, head down, partially convulsed, salivation increasing.

5-30.—Spasms ; defecated.

5-35.—Involuntary evacuations ; respiration slow ; tongue hanging out of mouth ; salivation very profuse.

5-40.—Dead in one hour.

EXPERIMENT No. 11.

July 23rd.—The same snake, kept alive in a hole in the wet sand, bit a full grown fowl at 7-35 A. M. This was not a fair bite, and took no effect. Bit again at 7-45 effectively. Fowl sat down after the bite.

8-11.—Lay down ; head resting on beak ; became convulsed.

8-25.—Convulsions.

8-35.—Dead.

The *Hydrophis* of four feet in length is evidently a very dangerous creature.

Experiments with Snake Poison by DR. FAYRER.

I am indebted to Mr. Galiffe, Collector and Supervisor of Calcutta Canals, for fine specimens of *Hydrophis Coronata* and *Enhydrina Bengalensis* from Dhappa.

EXPERIMENT No. 1.

A fowl was bitten in the thigh by *Enhydrina Bengalensis*, about 43 inches long, at 5-48 p. m of 11th August.

The snake was sluggish, and could only be made to bite by forcibly closing the jaws in the fowl's thigh. The fangs were small, and barely drew blood.

5-51.—Crouched, and became convulsed almost immediately.

Died at 5-55, or in 7 minutes.

The blood formed a firm coagulum when removed from the body after death.

EXPERIMENT No. 2.

August 12th.—The above snake died at 9 p. m. yesterday. Its jaws were closed with pressure on a fowl's thigh this morning at 7-34 A. M.

8-5.—The fowl limps.

8-12.—Crouching ; feathers staring ; wings expanded.

8-20.—Head drooping, resting point of the beak on the ground.

9-5.—Remains in the same condition.

9-50.—Convulsed.

11-35.—Remained in much the same condition until death after four hours.

The poison of this snake when vigorous and fresh in its own element, the salt water, must be very deadly.

EXPERIMENT No. 3.

On the 9th August, a *Hydrophis Coronata* was made, with much difficulty, and only by pressure, to close its very small jaws on the comb, and then on the thigh of a half-grown chicken. At 3-30 p. m., the chicken was excited, but apparently not in pain after the bite.

4 p. m.—Pecked some grains of rice.

4-11.—Crouching.

4-16.—Head falls over ; starts when its beak touches the ground.

4-30.—Drowsy ; beak resting on the ground ; wings drooping.

4-53.—Eyes closed, beak resting on the ground ; starts at intervals ; any noise makes it rise with a jerk.

5-15.—Cannot be roused by noise, but starts when touched ; falls over on its side.

5-33.—Apparently dead, lying on its side ; slight convulsions when raised by the wings.

5-55.—Dead in 2 hours and 25 minutes.

The poison of this snake is also very virulent; it was weak, had been many days in captivity, living in fresh water, but without food. The head is exceedingly small, and the fangs almost imperceptible. In its native element, I should imagine, it is, notwithstanding its small jaws, very dangerous. I have never met with a case of bite of the *Hydrophis* in the human being, but I think there can be no doubt that if a man were bitten by a well-grown snake, and in the water, where the snake would be active and vigorous, the danger would be as great as though he were bitten by a cobra on the land. Few accidents occur, the boatmen know the danger and avoid them.

Mr. Galiffe in his note to me also speaks of a fatal case in 1½ hours, which occurred somewhere in the vicinity of the Salt Water Lake.

In the Returns for 1869 I find a notice of a fatal case of a master of a ship who was bitten when bathing at Moulmein. I append a very interesting case, taken from the naval records, in which a seaman of H. M. S. *Algerine* was bitten mortally by a sea snake caught at Madras.

The case is in the transactions of the Zoological Society of London, vol. 2, p. 303.

"The other death in this vessel (H. M. S. *Algerine*) requires a more lengthened notice. On the 9th October, while the ship lay at anchor in the Madras roads, a water snake was caught measuring seven feet six inches long, and six inches and-a-half in girth at the thickest part. After the patient had handled the reptile for some time, it suddenly bit him on the inside of the index finger of the right hand, inflicting a wound resembling that caused by the point of a pin. He declined having the wound fomented, having been bitten by reptiles of the same kind, as he supposed, in the Straits of Malacca, without any bad consequences. At 8 A. M., half an hour after the infliction of the wound, he made a good breakfast, dressed, and about 10 o'clock went on deck. After taking a few turns, he was suddenly seized with vomiting, the matter ejected being of a dark-brown colour, resembling coffee ground, and of a very offensive odour. After a short time his pulse became small, variable, and intermitting, and the pupils were dilated, but contracted steadily by the stimulus of light. The left side of the face was slightly paralysed; there was subsultus tendinum, and the skin was covered with a cold, clammy perspiration; the countenance was anxious and indicative of much distress. In consequence of the spasmodic action of the muscles of the glottis, he breathed with great difficulty. The integuments from the wound to the wrist were slightly swollen, and on the right side of the neck and face they presented a mottled appearance of dark purple and livid colour. A ligature having been placed above the wrist, and fomentations applied to the hand, a liniment, composed of turpentine, liq. ammoniæ, and olive oil, was rubbed on the throat and neck. He made frequent attempts to swallow a mixture containing liq. ammoniæ and tinct. opii, but failed. At 10-20, in consequence of the spasms of the muscles of the glottis, he was put into a warm-bath, which apparently relieved the symptoms, and enabled him to take a dose of the mixture, which caused him to vomit a dark ropy fluid. About 20 minutes, after coming out of the bath (in which he remained 10 minutes), the spasmodic actions of the muscles of the neck and throat became more severe, and the whole body assumed a purple colour. The breathing became very difficult from the obstructions caused by a dark-brown substance, which came away in a stringy form from the air-passages. By 11 o'clock he was in a state of coma, the pupils were contracted, and the pulse imperceptible at the wrist. At 11-20, not quite four hours from the time he was bitten, he died: It does not appear that any *post-mortem* examination of the body took place. It will be remarked that the symptoms in this case very much resembled those produced by the bite of a rabid animal, although they were much more violent and more speedily fatal."

Taken from the Statistical Report on the health of the Navy on the East Indian Station in the years 1837, '38, '39, '40, '41, '42, and '43.

Remarks on certain of the Hydrophidæ, and Extracts from Notes on them by MR. STEWART, Civil Surgeon of Pooree.

"I have been fortunate in getting a number of both these specimens (*H. Cyanocincta*) lately, but unfortunate again, in that they perished very soon after I got them; some in fact were brought nearly dead. Whether it is that the violent surf threw them on the shore, or that they are with difficulty kept alive when once removed from the sea, I am not sure. The fact, however, is the same, that though kept in a gurrah of sea-water and exposed to the air, the animals are very feeble after 10 or 12 hours.

"I intend to have readier arrangements in future, so as to get the snakes to bite as soon after they are caught as possible. I am sorry that my attempts to get them to bite lately have been a failure from the above cause; but I hope to be able to supply you with a few facts as soon as I can.

"The *Pelamis Bicolor* is called by the Telinga fishermen Kullunder Samp, and is looked on as a very deadly snake by them; but I hope to satisfy myself about the truth of this.

"I got a female *Hydrophis Cyanocincta* brought to me dead. It had 16 eggs in it, each as large as a full-sized hen's egg. The young snakes in each egg were perfectly formed, and about six inches long.

"I still experience the same difficulty in getting the snakes active enough to bite. When they are freshly thrown upon the shore, they are ready to bite; but by the time I get them they are exhausted.

"I have tried dissecting out the poison gland, and inserting it under the skin of the thigh of a fowl. The first was from a thin-necked small-headed snake. The fowl did not appear to be affected at the time, but was found all but dead three hours after; and by six hours was quite dead. I tried *Pelamis Bicolor* this way, but failed. I am not, however, satisfied with this, as I was told that the snake was first brought to my house while I was out, and had been biting at sticks and other things thrust into its mouth. So I think its poison may have been exhausted.

"Sea snakes are at this season (June) very difficult to obtain. In the quieter months of the cold weather, when a great deal of fishing goes on, I believe numbers are then caught in drag nets; whereas just now, with high sea and fresh breezes, nothing is done, and I have great difficulty in getting fresh specimens.

"A good plan for keeping the sea snakes alive is to make holes in the wet sand near the sea-water. I was thus able to keep one alive all day, and able to bite yesterday evening and again this morning. So placed, they must be protected from kites and crows by a cover of some kind.

"From my little experience of the *Hydrophidæ*, I can say that I have not yet seen one which did not kill if it bit fairly. Three difficulties I have noticed in the way of a fair bite; first, the inertness of the snake after being removed from its native element; second, the extreme difficulty in getting its small poison fangs to insert in anything like tough skin; third, the feeble power of the jaws of some, from natural conformation and from want of muscular action, necessary for full closure, and expulsion of the poison. Every snake that was found active and able to bite of itself, closing its jaws perceptibly, inflicted a fatal wound. Mere pressure of the jaws of dead and dying snakes over soft parts, with the view to bring out the action of the poison, was in nearly every instance followed by no result.

"The dissection and insertion of the poison gland was tried in two instances; in one death followed after some hours; in the other case it was a failure. I have been trying to find out from fishermen any peculiarities they know of the *Hydrophidæ*, but their statements are seldom the same on two occasions.

"I have not been able to hear of any fatal bites from sea snakes in fishermen, who dabble so freely in the waters, either when fishing with small hand nets near the shore, or in catamarans further out. As I said before, many snakes are enclosed in deep sea-nets, but these men know their deadly properties and lift them away.

"The fact of these men plying about so freely in the water near the surf, and withal escaping being bit, should go far to remove the fears of sea-bathers, even though it be more generally known that they are liable in the enjoyment to be in proximity to such deadly neighbours. I have enquired of several fishermen, but not one can recollect of any man losing his life in this way.

"Natives declare that *Pelamis* is the most deadly of all, and refer to their Shastras about it. The boatmen believe that this snake bit Mahadeb, and the god, to cool the burning effect of the venom, dipped himself in the sea, on which account Juggurnauth (or Maha Probha, as he is also called) banished the Kullunder Samp (*Pelamis*) beyond the seas. Mahadeb is a god worshipped under water, and exposed only once a year. I have not had an opportunity of enquiring into this fable from the pundits."

In addition to these notes, Mr. Stewart has been kind enough to send me some fine specimens of *Pelamis Bicolor*, *Hydrophis Cyanocincta*, *H. Jerdonii*, *H. Curta*, *H. Chloris* and another new species which Dr. Anderson, the Curator of the Indian Museum, says is allied to *H. Hardwickii*, but quite different. He has named it *H. Fayreri*.

With several of these Mr. Stewart was able to experiment, and the results of these experiments, which are appended, prove that the venom of the *Hydrophidæ* justifies the evil repute it has acquired.

My own experience of the *Hydrophidæ* is limited to experiments with *H. Coronata* and *Enhydrina Bengalensis*. For these specimens I am indebted to Mr. Galiffe, Collector and Supervisor of Calcutta Canals. They were caught by fishermen in the tidal nullahs near Calcutta, and experiment proved them to be very poisonous.

On enquiry from Mr. Galiffe on the subject, he says—"I have enquired from the fishermen of any fatal case of snake-bite. In one instance a fisherman was bitten by one *Ghanga Berah*, and died in 1½ hour. They speak of three other kinds, whose bites, however, are easily cured."

Mr. Stewart observes, what has been noticed by others, that the *Hydrophidæ* are very delicate and die soon after being captured, even if in their native element. I was astonished, therefore, to find that a fine specimen of *H. Coronata* lived for 8 or 10 days, although it was only occasionally placed in a jar of fresh water, the rest of the time living in an ordinary cage like other snakes. The movements were exceedingly graceful in the water, whilst it seemed powerless, stupid, and blind on the land. Its head and jaws were exceedingly small, and it was with the greatest difficulty it was made to bite, and then only by compressing its jaws; when, however, it did insert its fangs, small as they were, the poison was soon fatal to a fowl.

Fatal case of poisoning by Daboia Russellii by DR. W. A. THOMSON, Staff Surgeon, H. M. S. "Thayetmyo," communicated by Dr. J. Fayrer.

The following very interesting account of a fatal case of snake-poisoning has been forwarded to me by Dr. Thomson, Staff Surgeon, H. M. S., from Thayetmyo, in Burmah.

From the description, the snake was evidently *Daboia Russelli*, or Russel's Viper, the *Ticpolonga* of Ceylon.

28th Sept. 1870.

The following instance occurred at Thayetmyo, British Burma, in May 1868. The subject was a gunner of the Royal Artillery. By kind permission of Dr. Croker, R. A., at present in medical charge of A-23, R. A., I am enabled to furnish the following particulars extracted from the Case Book.

The case was recorded by Dr. Murray, Staff Assistant Surgeon, who was in medical charge of the Battery at the time the accident occurred.

R. W., age 23 years. Service 9 years.

A strong powerfully-built man, of good muscular development, was admitted into hospital this morning (May 22nd, 1868). States that soon after daybreak, as he was entering the "fowl-house," which is in close proximity to the barracks, he observed a dark thick-set snake of about two feet and a half in length (species unknown, but not a cobra), and that he took up a piece of bamboo and began teasing it, whereupon the reptile turned and bit him on the finger.

The snake held on for a short time, and it was with some little difficulty the man shook it off. The "fowl-house," where the accident occurred, is distant from the hospital about 600 or 700 yards. The man came at once to hospital, being advised by one of his comrades to do so, when on the way he became very weak.

The apothecary saw the patient on his arrival at hospital.

It is supposed that a lapse of 20 minutes must have occurred from the time he received the bite until he reached the hospital, and nothing had been done meantime in the way of remedies.

The apothecary immediately scarified the wounded finger freely, made the patient suck the wound, and administered ammonia. I was then sent for, and proceeded without delay. On examination, I found two small punctured wounds on first phalanx of index finger of the left hand. The finger itself was swollen and livid.

The patient complained of very little pain, but seemed naturally anxious, although it was considered by many that the snake was non-venomous.

I ordered hot fomentations with a view to encourage, as much as possible, the bleeding from the part where it had been freely scarified.

I also ordered constant fomentations all over the arm.

An aperient was given. It was directed that the patient be carefully watched.

Vespere, 6 P. M.—The bowels were moved through the day, but the patient has been restless, turning on one side, then on another.

The finger and hand are considerably swollen and discoloured, and the fore-arm is partially so.

The pain is not severe, although he complains of it, extending up the arm; no swelling from elbow upwards.

Is slightly feverish.

Pulse good and not hurried; complains of thirst; ordered lemonade to drink.

To have an opiate at bed time.

The hand and arm to be constantly stiped with poppy-heads, and the patient to be carefully watched during the night.

23rd May.—On my visit this morning, I found the man most dangerously ill.

At times excited, tossing about his arms and legs in every direction, and rolling his head from one side to another.

The pulse almost imperceptible. Breathing hurried, 40-1'. Surface covered with cold clammy sweat. Conscious when roused, and then immediately falling back into a stupor.

Face suffused.

Ordered brandy and water, stimulating draughts of ammonia, and turpentine stipes to extremities.

The left hand and arm greatly swollen. Bluish tint over the hand. Surface from elbow to shoulder much reddened.

The inflammation extended to the left side of chest, which was also red and swollen.

He rallied a little for upwards of an hour between 7 and 8 A. M., and then began to sink.

Pupils became contracted, and insensible to the stimulus of light.

From 8 A. M. he became rapidly unconscious. Now and again he tossed himself about with such violence that the attendants had some difficulty in keeping him in bed.

The treatment mentioned above was persevered in, and, in addition, galvanism was applied along the spine and over the chest.

At 8-30 A. M. he was moribund. Respiration 40. Restless and unconscious. Heart's action fluttering. Spasmodic twitchings observed over course of diaphragm. Pulse at wrist not detected.

Died at 9 A. M.

Post-mortem appearances 7 hours after death.

External appearance of the body was that of a person who had been well nourished and healthy, and of great muscular development.

The left hand and arm were considerably swollen; also swelling of left axilla.

Two small punctured wounds were observed on first phalanx of index finger of left hand.

Head.—On removing calvarium, considerable congestion was observed of the vessels on the surface of the brain. There was a general softened state of the brain substance throughout.

In right lateral ventricle a small quantity of serous fluid was found.

Thorax.—Lungs collapsed. When cut into were found gorged with blood, the latter being remarkable for its fluidity. The apices of lungs were emphysematous.

Heart.—Size normal, structure healthy. A large clot of blood in left ventricle, extending into ascending portion of aorta, and having appearance and consistence of black currant jelly; clots were also found in right ventricle and auricle, and in pulmonary arteries. That in the latter was semi-fluid.

Liver.—Normal, and appearance when cut into healthy.

Gall bladder distended with bile.

Bowels.—Appearance healthy. Spleen, natural size, soft and easily broken up by the fingers. Kidneys, healthy in structure, and normal in size. Bladder empty.

REMARKS.—The above case was highly interesting. I saw the man about one hour and a half before death, when his symptoms were exactly as described by Dr. Murray.

I did not see the snake, as unfortunately it had been destroyed and thrown away the day before.

The following description, however, was given to me by Assistant Apothecary Roberts, A-23, R. A:—

“It was a snake about 2½ feet in length, with a flat oval head. The thickest part of the body measured about three inches in circumference. The tail was five inches long.

“The colour of the head and back of a French grey; the belly white.

“In the middle of the back ran a row of lozenge-shaped spots (white).

“It had two large curved fangs.”

I am inclined to believe from the description that the snake was a species of viper.

THAYETMYO,
The 25th July 1870. }

W. A. THOMSON, M. D.,
Staff Surgeon.

Note.—When the left hand was cut into, the muscles were found disintegrated and of a dark colour. When the upper arm was cut into, the muscles soft and infiltrated with serous effusion.

D. MURRAY, M. D.,
Staff Asst. Surgeon.

On the Treatment of Snake-bite.

Snake poison produces fatal or deleterious effects, either by completely paralyzing the nerve centres, and thus causing rapid dissolution, or by partially paralyzing them, and poisoning the blood, thereby inducing pathological conditions of a secondary nature, which may, according to circumstances, cause the slightest or the most dangerous symptoms.

The effect produced depends on two sets of conditions: *first*, the species of the snake, its actual state at the time, the quantity and quality of its poison, and the circumstances under which it inflicts the bite; *second*, the species, size, and vigour of the living creature, and the circumstances under which it is bitten.

Snake poison is essentially a neurotic, or nerve force paralyser, and, when it takes full effect, it kills by annihilating, in some unknown way, the source of nerve force.

But it is also an irritant; for, if applied to a mucous membrane, or to the conjunctiva, it causes violent inflammation; absorption at the same time takes place, and the symptoms of poisoning are produced.

It is also, to a certain extent, a septic; for if the bitten creature survive, the wound and the parts about it are apt to slough and to induce septicæmia. The poison acts by absorption; that is, by entering the circulation, and so reaching the nerve centres; it produces, according to the quantity or intensity of the venom, either death, or severe local and constitutional symptoms. If it find entry by a large vein, such as the femoral or jugular, life may be destroyed in a few seconds.

The blood itself is affected by the poison. I have not been able to detect any corpuscular changes, such as those described by Professor Haldord, nor have I any exact information on the chemical changes it undergoes or may have undergone; but that it is altered there can be no doubt; and in poisoning of the lower animals, at all events by the viperidæ, its coagulability after death is generally destroyed, whilst after death by poisoning, by the colubrine snakes, the blood generally coagulates.

As the blood is the channel through which the poison acts, it is obvious that the first object should be to arrest, destroy, or prevent its entry into the circulation, or, if it have already entered, neutralize or counteract its action, or to procure its elimination by the agency of the natural depurating organs and their secretions, and to treat local, consecutive, and constitutional symptoms by such remedial measures as may be required by the patient's condition. Absorption takes place with extreme rapidity; so fast, indeed, that it was formerly supposed, in the case of some of the more active poisons, that they acted by transmission of a shock through

the nervous system; and, so far as we know at present, it is not improbable that such, in some instances, may be the case. But rapid as the effect of snake bite sometimes is, there is no reason to believe that it operates on the nerve centres through any other channel than that of the vascular system.

The experiments of Blake, Hering, and later of Claude Bernard, show that absorption takes place with such rapidity as to explain the most rapid deaths from such cause. Blake (*vide* Guy's Forensic Medicine, 3rd edition, page 388) found that a poison passed from the jugular vein to the lungs of a dog in from four to six seconds; from the jugular vein to the coronary arteries of the heart in seven seconds; a poison injected into the jugular vein was distributed throughout the circulation in nine seconds. Claude Bernard found that a saturated solution of sulphuretted hydrogen introduced into the jugular vein of a dog began to be eliminated from the lungs in three seconds, and when injected into the femoral vein of the same dog in six seconds.

I have neither seen nor heard of any case of snake poisoning in man or the lower animals so rapid, though in some I have observed the first symptoms in a few seconds, as to justify the conclusion that poisoning had occurred otherwise than through the medium of the circulation.

Such being the rapidity of the absorption and action of the poison, it is obvious that if the means, whatever they may be, of destroying and arresting its entry, be not applied immediately, but little benefit can be expected from them. If more than a few seconds have elapsed, we can only hope by these measures to prevent the entry of so much of the poison as may be diffused in the areolar tissue surrounding the bitten spot.

As the chief hope of safety lies in preventing the entry of any poison at all into the circulation, the earlier appropriate measures are resorted to, the better is their chance of success. These I will now describe.

The ligature.—This, if applied immediately, at a little distance above the bitten part, may not only arrest the entry of the poison into the circulation, but may also prevent its diffusion in the areolar tissue in a centric direction. The efficacy of this method of treatment has long been recognized by the natives of this country, who apply it, not just above the bite only, but at several places on the limb at intervals of some inches. There is reason to believe that if this be done without delay, the course of the poison may sometimes be stayed and life saved. Not long ago I saw a professional snake-charmer in the employ of the King of Oude, who said that he had been bitten in the finger by a fresh cobra. A ligature was immediately tied in three or four places above the bite, and though he suffered constitutionally to some extent, he had escaped with life. His finger, however, was shrunk and ankylosed, owing to excessive burning, the result of fire which was applied in the form of live-coal until the tendon shrivelled and was destroyed.

The danger and difficulty lie in not applying the ligature quickly enough. The confusion and alarm caused by the bite, the brief time that must elapse before the simplest ligature can be improvised, are liable to cause dangerous delay; and with every second of time lost, the danger increases. There is also the probability that the ligature may not be sufficiently tightened; no mercy, therefore, can be shewn; it must be tightened to the utmost, or it will not effect its purpose, and the poison will enter and do its fatal work. A piece of the dress twisted, a bit of string, a strap, anything that can be made to enclose the limb or part, should be immediately applied, and should be strained to the uttermost by twisting with a piece of stick; nor should the tension cease until the circulation is entirely arrested, and the part is livid with the retained blood.

The experiments I have made on the lower animals show not only how rapidly the poison enters, if the circulation be not immediately arrested, but also how difficult it is so thoroughly to compress the limb as to completely stop the circulation.

I found it all but impossible, with the strength of a pair of hands, so to tighten the ligature as to effect complete strangulation of a dog's hind leg.

The method most likely to succeed would be to tie the ligature tightly round the part, including a piece of stick, or some such lever, and then, by twisting the stick, so completely strangle the part that circulation ceases—at whatever cost, this should be done. If the bite be in a finger, thumb, or toe, the first ligature should be applied a short distance above the bite, a second on the fore-arm or leg, and even a third higher up; it is the best, perhaps the only, chance of saving life; and however great the pain, it must be endured. No time should be lost in scarifying the punctures so as to allow the blood to flow freely; and then in applying fire, a live-coal, a red-hot iron, some caustic, mineral or carbolic acid, to the wound, so as to destroy the poison which is contained in the strangulated part; the disorganization must be very complete, or even then it will fail, as enough of the poison may remain to be subsequently absorbed when the ligature is removed, and after all destroy life. In the case of a finger or toe, I believe that immediate amputation would be justifiable, if the sufferer or his companions, an instrument being at hand, had the moral courage to lop off the part at once.

The natives are in the habit of placing a live-coal, or of exploding gun-powder, on the bitten part, and no doubt they are right in doing so.

The place and circumstances under which snake-bites occur are frequently such as not to leave much choice of means; but it would generally be possible to extemporize a ligature and a hot coal, or perhaps among sportsmen a little gun-powder might be forthcoming. Should the bite be inflicted on a part of the body where a ligature could not be applied, the only expedient remaining is to excise the part to the depth of punctures, let it bleed freely, and then apply fire or caustic. There is no time for reflection or consideration; it must be done at once, and thoroughly, or there is no hope of avoiding the influence of the poison. If the snake has been

seen and recognized as venomous, no doubt remains as to its necessity. But, if it has not been seen, and the marks indicate a poisonous snake-bite, the patient must have the benefit of the doubt, or his chance of life may be lost.

Suction either by the mouth or cupping-glasses is useful; for the latter purpose any small vessel might suffice; a little spirit or a piece of burnt paper alone would serve to exhaust the air; that by the mouth is efficacious, but it must be borne in mind that there is danger in applying the poison to the lips, for it may be absorbed, and evil results follow to the operator. But suction, however practised, should be applied after the ligature in those cases where that application is practicable; where it is not, after excision, and before the application of caustic or cantery. Fire may be applied, as I have said, either by the live-coal, the hot iron, or by exploding gun-powder on the part, or by the moxa.

The mineral acids, chloride of zinc, carbolic acid, or strong acetic acid, may be applied with a piece of old linen or cotton attached to the end of a piece of stick or other convenient vehicle.

The liq. ammoniæ, or liq. potas, are among the local applications recommended, but I have ascertained, by experiment, that they do not destroy the poisonous properties of the virus, although *mixed with it* in even more than equal quantities, and therefore are not to be trusted. Ipecacuanha, iodine, and other specifics are recommended as local applications. They are, I fear, useless.

Such are the local measures to be resorted to. At the same time, as there is great and rapidly increasing depression both from mental as well as physical causes, stimulants should be given at once frequently and freely. Hot brandy, or whisky, or rum and water, equal parts of each, are the best. Ammonia is also useful as a stimulant, and may be given in any of its officinal forms—the carbonate, the liq. ammoniæ, or the eau-de-luce. But it is simply as a stimulant, and has no specific or antidotal action beyond this. At the same time, warmth and sinapisms to the precordial and epigastric regions, in some cases cold douches, and all measures that may tend to rouse and stimulate the failing nervous energy, should be resorted to. So far popular notions are supported by science. But another popular view of the treatment of the so-called lithargy induced by the poison—that by walking the person violently about, and keeping him awake by flogging, pinching and other such violent measures—is, in my opinion, of very doubtful efficacy, if not altogether wrong. The man who is dying from snake-bite is perishing from rapid exhaustion of nerve force. To make him take violent exercise and deprive him of rest seems to me more likely to do harm than good. It would be almost as reasonable to give a man a blow on the head to recover him from concussion of the brain, or give him antimony to cure him of sea-sickness. Let him lie down; leave him to rest, to sleep, if he can. Many of the cases of so-called poisoning are not poisoning at all; the snake has not been seen, and it may have been innocent, or it may have been a poisonous snake, but exhausted. The punctures are there, and the appearances are all those of snake-bite. But the depression is due to mental shock from the dread of impending death. I have seen such a case.

Rousing, in the fashion I have alluded to, might do good here, but I believe that in real poisoning it can do only harm by exhausting the already-sinking powers of life. It may be said, it has often succeeded; people have been so treated and recovered. Who can say they would not have recovered as soon, perhaps sooner, without it? "*Post hoc*" does not always mean "*Propter hoc*."

With reference to the snake stones which, when applied to the bites, are said to absorb and suck out the poison and obviate its evil effects, I have only to say that I believe they are perfectly powerless to produce any such effect. Of this more subsequently.

As unfortunately, in a large number of cases, persons who have been bitten by venomous snakes are not so promptly and vigorously treated, and the poison has found entry and manifested its presence by dangerous symptoms, it is too late to hope for any benefit from the application of the ligature or other local measures having for their object neutralization or destruction of the poison. The only course of treatment now to be adopted is that of endeavouring to neutralize or counteract the action of the poison which has already affected the nerve centres and poisoned the blood, and to support the strength during the continuance of the depressing influence.

This brings me to speak of the so-called antidotes, many of which have been and are so much vaunted. To name them all would be impossible, but I may say that most reliance has been placed on a few, such as ammonia, arsenic, iodine, bromine, the poison and the bile of other snakes, the guaco plant, ipecacuanha, aristolochia, senega, and, indeed, on nearly every drug in or out of the pharmacopœia, to say nothing of many other things that have been in vogue among the ignorant, vulgar, or superstitious, and that have nothing whatever but credulity to suggest their utility. I have made repeated experiments with many of them on the lower animals, and have seen nothing to induce me to believe that they have any good effect whatever.

I have no hesitation in saying that I believe them to be useless, and that excepting for their stimulant action, when they have any, they are inert. When the symptoms of poisoning have set in, either when the ligature and excision, or caustic or cantery, have failed, or when they have not been used, I believe that the only rational treatment is to endeavour to rouse the sinking energies, and arrest the tendency to fatal paralysis of the nerve force, by the aid of alcohol or other stimulants, such as ammonia or ether, judiciously administered, avoiding anything that can depress, such as fatigue or over-exertion, especially that of the popular

method of making the sufferer walk when his force is almost expended. Brandy or whisky, indeed any form of alcohol, should be given freely and frequently, though not in large quantities sometimes recommended. Galvanism may also be of service along the spine to the solar plexus or to the heart; in certain cases cold douches may be useful. Hot bottles and sinapisms may be applied, and every encouragement should be given to the sufferer, for much of the depression depends on mental causes. I have seen a strong man, who appeared almost at the point of death (from fright), recover in a very short time when I told him that the snake that had bitten him was innocent, and let it take hold of my finger to prove it so. So that whatever can be done to remove this element of depression, should be done by encouragement and assurance of safety (when the snake is found to have been innocent or weak), and in other cases, with hopes of recovery, which not unfrequently takes place, not because antidotes have been given, but because the bite has been imperfect or the snake incompetent; and, no doubt the recovery may be aided and expedited by treatment such as I have described. It will be inferred from what I have said that I put little faith in any of the so-called antidotes. My views of the treatment of snake-bite are, that if the early endeavours to prevent the entry of the poison into the system are unsuccessful, as unfortunately is too frequently the case, our reliance must be placed on supporting the strength with alcoholic, ammoniacal, or ethereal stimulants, and by treating consecutive mischief of constitutional or local character by such combination of remedial measures as the peculiar symptoms may suggest. My belief is that, if a certain quantity of the poison have entered the circulation, we can expect but little benefit from treatment of any kind; where less has entered, yet enough to cause dangerous, present and consecutive symptoms, we may do much to support the strength and save life by ordinary rational measures. But that we possess any drug or substance, solid or fluid, that, either swallowed or inoculated, can counteract or neutralize the poison once absorbed, and acting on the nerve centres, I do not believe, and I think the notion that we do is a dangerous one and liable to do harm by inspiring confidence in ways and means in which none should be placed. I have already explained how snake-bites may occur, and yet the bitten person may not be poisoned at all, or so slightly, as to leave it quite possible that recovery may take place. In such cases, recovery is due mainly to the inherent vigour of the individual, and in part, no doubt, to treatment. It is also my belief that a large proportion of such cases would recover without any treatment at all, though in some the judicious use of remedies may turn the balance in the patient's favor. I neither wish to discourage treatment, nor to throw cold water on investigation, but merely to state the facts as I think they exist.

It is right that the truth should be known, even if it be not what we could wish it; and it is better that we should study preventive measures and ascertain exactly how much we can do in those cases where our aid may be of avail, than that we should trust to measures which common sense and science alike should make us distrust.

With reference to the subsequent effects, constitutional or local, they should be treated on ordinary surgical principles. The strength should be supported by nutrients and wine, with such mineral or vegetable tonics as may seem appropriate. Collections of pus should be evacuated; the separation of sloughs aided by poultices and antiseptics, and the healing wounds dressed as other wounds of a similar form or character from other causes would be dressed and tended.

Should symptoms of a pyæmic or septicæmic nature arise, we must treat them as we would do similar conditions arising under other circumstances. The result will depend on the extent of blood-poisoning and the vigour of the person.

Although, from what I have said, it will be evident that in cases of real bites from the deadly forms of snake our reliance is chiefly on early and preventive measures, and not on the so-called antidotes, I hope it will not be inferred that I mean we are altogether powerless; far from it! I believe that in a number of cases—and I have described them—we may be of use; and we can, at all events, alleviate suffering, give hope and confidence where we are justified in doing so, and do all that science and common sense suggest as likely to be of service. The plan suggested by Dr. Halford, of Melbourne, of injecting ammoniæ into the veins, does certainly seem more rational than most suggestions that have been made, and I regret exceedingly that in my own experiments it has proved of no avail. The reason may, indeed, be in the greater virulence of the Indian *Thanatophidia*, and this may be the explanation of my failure where Dr. Halford has found success. But after all, the more venomous snake is the most crucial test. I would say the same in reference to the similar use of the liq. potas by Dr. Shortt in Madras. He, I believe, does not attach the same amount of importance to it as Dr. Halford does to the ammoniæ. In my researches both have been equally powerless, and I confess that I have felt much disappointed that experience has not confirmed the benefit of what certainly were rational suggestions by authorities to whom science is deeply indebted for much valuable information and most earnest investigation on an important subject.

I would summarize the treatment of snake-bite as follows:—Apply, at once, a ligature or ligatures, at intervals of a few inches, as tight as you can possibly tie them; and the one nearest to the wound tighten by twisting with a stick or other such agent. Scarify the wound, and let it bleed freely. Apply either a hot iron or live-coal, or explode some gun-powder over the part; or apply either carbolic or some mineral acid or caustic. Let the patient suck the wound whilst you are getting the cautery ready; or if any one else will run the risk, let him do it.

If it be a positive bite on a toe or finger, especially if the snake has been recognized as a deadly one, either completely excise, or amputate immediately at the next joint. If the bite

be on another part, where a ligature cannot be applied, or indeed if it be on the limbs above the toes or fingers, cut the part out at once completely.

Let the patient be quiet. Do not fatigue him by exertion. When, or even before, symptoms of poisoning make their appearance, give eau-de-luce, or liq. or carbonate of ammonia, or even better than these—hot spirits and water. There is no occasion to intoxicate the person, but give it freely, and at frequent intervals.

If he become low, apply sinapisms and hot bottles, galvanism or electro-magnetism over the heart and diaphragm. Cold douches may also be useful.

The antidotes, in addition, may be used by those who have faith in them; but, as I have said, I fear there is no reason to believe that they are of any use. Encourage and cheer the patient as much as possible. As to local effects, if there be great pain, anodynes may be applied or administered, and antiseptic poultices to remove sloughs; collections of matter must be opened.

Other symptoms to be treated on general surgical principles.

This, I believe, is the sum and substance of what we can do in snake-bite. If the person be not thoroughly poisoned, we may help him to recover. If he be badly bitten by one of the more deadly snakes, we can do no more.

I take the following account of the snake-stone from Sir E. Tennent's work on Ceylon:—

“They are of the size and appearance of small black almonds, highly polished, and of an extremely light substance. They are said to attach themselves closely when applied to the bitten part, the blood that oozes from the bite being rapidly imbibed by the porous substance of the so-called stone. They adhere tenaciously for three or four minutes. Meanwhile, the bitten limb is well rubbed downwards from the shoulder towards the fingers. At length they drop off, and the bitten person is said to be free from danger. Instances are narrated where happy result occurred. A bit of root is at the same time passed over the stone. One bit of root so used proved to be an aristolochia stem.”

The snake-stone was examined by Professor Faraday, who expressed his belief that “it is a piece of charred bone, which had been filled with blood, perhaps, several times, and then carefully charred again. Evidence of this is afforded, as well by the apertures of cells, or tubes in its surface as by the fact that it yields and breaks under pressure and exhibits an organic structure within. When heated slightly, water rises from it, and also a little ammonia; and if heated still more highly in the air, carbon burns away, and a bulky white ash is left, retaining the shape and size of the stone.” This ash, as is evident from inspection, cannot have belonged to any vegetable substance, for it is almost entirely composed of phosphate of lime. Mr. Faraday adds that “if the piece of matter has ever been employed as a spongy absorbent, it seems hardly fit for that purpose in its present state; but who can say to what treatment it has been subjected since it was fit for use, or to what treatment the natives may submit it when expecting to have occasion to use it?”

Tennent goes on to say: “The probability is that the animal charcoal, when instantaneously applied, may be sufficiently porous and absorbent to extract the venom from the recent wound, together with a portion of the blood, before it has time to be carried into the system; and that the blood which Mr. Faraday detected in the specimen submitted to him was that of the Indian on whose person the effect was exhibited. The snake-charmers from the Coast, who visit Ceylon, profess to prepare the snake-stones for themselves, and to preserve the composition a secret. Dr. Davy, on the authority of Sir A. Johnston, says the manufacture of them is a lucrative trade carried on by the monks of Manilla, who supply the merchants of India; and his analysis confirms that of Mr. Faraday. Of the three different kinds which he examined, one being of partially burnt bone, and another of chalk, the third consisting chiefly of vegetable matter resembling bezoar, all of them (except the first, which possessed a slight absorbent power) were quite inert, and incapable of having any effect except in the imaginations of the patient. Thunberg was shown the snake-stone used by the boors at the Cape in 1772, which was imported for them from the Indies, especially from Malabar, at so high a price that few of the farmers could afford to possess themselves of it. He describes it as convex on one side, black, and so porous, that, when thrown into water, it caused bubbles to rise, and hence, by its absorbent qualities, it served, if speedily applied, to extract the poison from the wound.”

In a foot-note, Tennent gives the following further particulars since the foregoing account was published: “I have received a note from Mr. Hardy relative to the *pedra ponsona*, the snake-stone of Mexico, in which he gives the following account of the method of preparing and applying it: ‘Take a piece of hart's horn of any convenient size and shape, cover it well round with grass or hay, enclose both in a thin piece of sheet copper well wrapped round them, and place the parcel in a charcoal fire till the bone is sufficiently charred. When cold, remove the calcined horn from its envelope, when it will be ready for immediate use. In this state it will resemble a solid black fibrous substance of the same shape and size as before it was submitted to this treatment. Use. The wound being slightly punctured, apply the bone to the opening, to which it will adhere firmly for the space of two minutes, and when it falls, it should be received into a basin of water; it should then be dried in a cloth, and again applied to the wound. But it will not adhere longer than about one minute. In like manner it may be applied a third time; but now it will fall almost immediately, and nothing will cause it to adhere any more.’

"These effects I witnessed in the case of a bite of a rattle-snake at Oposura, a town in the Province of Sonora, in Mexico, from whence I obtained my recipe; and I have given other particulars respecting it in my travels in the interior of Mexico, published in 1830-31.—R. W. Hardy, Bath, 30th January 1860."

There is a germ of possible truth in the idea that these stones can be of use; for, if they absorb as they are said to do, no doubt some blood and poison mixed are taken up by their pores.

But when we reflect on the quantity of poison and the force and depth with and to which it is injected through the fang of either cobra or viper, and the extreme rapidity with which it is hurried along in the vascular system to the nerve centres, I think it is obvious that this can be of little use in a *real bite* of a deadly snake, and that it is a dangerous delusion, as it may be the cause of the loss of the first two or three seconds, which are so precious to the sufferer, for on what is done in them, his life may depend. I may add that I have found the snake-stone as powerless for good as any of the so-called antidotes.

MEMORANDUM by DR. V. RICHARDS, Civil Medical Officer, Balasore, dated 12th December 1872, on Dr. Halford's Treatment in Snake-bite, communicated to Dr. Fayer.

In a letter to E. C. Bayley, Esq., c. s. l., Secretary to the Government of India, Professor Halford of Melbourne defends his mode of treatment. I purpose showing, in the following lines, with what success.

The question at issue is this:—Is the injection of ammonia into the veins a remedy for the bite of an Indian venomous snake?

Dr. Halford asserts that, reasoning by analogy, his opinion is that, if "ammonia be as freely injected into men's veins in India (instead of dogs) as it has been in Victoria, it will become as great a favourite there (in India) as it is here (in Victoria)."

I will first proceed to examine the grounds on which Professor Halford has founded his opinion. On the statement of Dr. Fayer—to the effect that "the injection of ammonia into a vein fails to counteract the action of the virus of the deadly snakes of India on the lower animals—" Dr. Halford remarks that "the actual experiments on human subjects prove its efficacy." The basis, therefore, upon which Dr. Halford seeks to establish the efficacy of his mode of treatment, is actual observation on human beings. But he remarks in the 9th paragraph of his letter to Mr. Bayley—"no one, I suppose, will deny that a bite that ends fatally is a really severe one. *But who is to know whether any bite is going to end fatally?*" Again in the 11th paragraph—"all experience, and all the literature of snake-poisoning, tells us *we cannot say what is and what is not a severe bite until the result*; and if we wait for that, of course it will be too late for treatment." And yet it is on these very conditions that the efficacy of his treatment is sought to be established—actual observation in cases in which it is absolutely impossible to tell whether the bites were *legitimate* or not. Strange as it may appear, it is nevertheless true that nearly all those who come under treatment for snake-bite *recover under very different modes of treatment*, and it is due to this fact that so many reputed antidotes exist. This being the case, adopting the line of argument introduced into the 10th paragraph of Dr. Halford's letter—*If liquor ammonia had been injected into the veins in all these cases of recovery, it would have been "set down" to the treatment. In fact, had any one universal mode of treatment been adopted (as appears to be the case in Victoria) that treatment would have been regarded as a panacea, an antidote, no matter how much "beside the truth" it would have been. The futility of seeking to establish the value of any treatment upon such uncertain conditions as these "observations made on human subjects" being acknowledged, it becomes necessary to consider what other procedure is more valuable as a means of enabling us to draw reliable deductions.*

It is manifestly impossible to experiment with snakes on human beings (in the true sense of the word "experiment"—that is, where all the conditions are in the power of the experimenter); we must, therefore, do so on the lower animals.

Dr. Halford admits, with regard to the poison, that "it is perfectly true in a broad sense that the effects of snake-poison are similar in man and in the lower animals," and states that it was "from seeing the beneficial effects of injected ammonia in snake-poisoning *in dogs*, that he recommended its use in similar cases in men." All the arguments regarding the injection into the veins of large quantities of morphia and atropine are therefore beside the question. The result of a snake-bite, whether in the lower animals or in man, is death, and the result of Dr. Halford's treatment, according to his shewing, both in the lower animals and in man bitten by venomous snakes, is recovery. These being Dr. Halford's own convictions, it is very remarkable to find him ignoring the experiments made on the lower animals in this country, especially as he "concludes that there is little difference between the Australian tiger-snake and the Indian cobra as regards the power of the poison."

Like Dr. Fayer, I have carefully tested the injection of ammonia into the veins of the lower animals bitten by Indian venomous snakes, and unhesitatingly assert that it has failed to prevent death even in a single instance. I think, therefore, considering all the circumstances, we are justified in concluding that Dr. Halford's treatment "has no power in saving life in the bite of an Indian venomous snake."

So much for the efficacy of the treatment: now for its utility and general applicability, *presuming its efficacy established.*

Dr. Halford is no doubt little acquainted with India. How many of the "20,000 who die annually in India from snake-bite" come under the treatment of European medical men, or natives educated in the science of medicine? It will probably astonish him to find that not 20 do. Granting him, then, "the one in twenty saved," "*the fact remains*" that one life out of 20,000 would be saved. Professor Halford's procedure is much too complicated: *instruments, professional skill*, besides immediate action, are necessary. The action of the cobra and other snake-poison is rapid, death occurring from fifteen minutes to a few hours. Does Dr. Halford suppose that each village has its educated medical man, and, even if it had, the villagers would apply to him, instead of to their native snake-charmers? It would appear so. Although I resided for five years in the District of Banjoorah (one of the worst in India for snakes), in which 100 people die annually from snake-bite, not one of them during the whole five years came under my treatment, but eight, who recovered under various treatment, did. Now, had I injected ammonia into the veins in each instance, and claimed for that treatment absolute success in my hands, "*it would have been beside the truth.*" What would Professor Halford say of the application of hot sealing-wax as a remedy to snake-poisoning? He would in all probability laugh at it as an absurdity, and he would be right. But there is a gentleman who advocates it, and moreover declares that he has proof of its efficacy from *observations on human beings*. A Bordeaux newspaper, "*Le Mouvement*," of the 30th of October 1871, has the following:—"M. Héliodore, Ruiz, de Colombié (Nouvelle-Grenade) écrit au Gouvernement de cette contrée, qu'il a traité avec le plus grand succès un grand nombre de morsures de serpents par la cautérisation. La province abonde en serpents dont la venin est mortel; or M. Ruiz a déjà guéri soixante-dix personnes mordues, en faisant couler simplement, sur chaque morsure quelques gouttes de cire à cacheter."

To the very same "undoubted facts," on which Dr. Halford assumes the efficacy of his treatment, do numerous other persons, none the less truthful, appeal, as confirmatory evidence in favour of their separate *antidotes*. How, then, can deductions based upon such data be considered anything but fallacious?

I trust Dr. Halford will regard this criticism of his mode of treatment in the light it is intended, *viz.*, as one of the means of ascertaining the truth. Dr. Halford has alluded to success having attended his experiments on dogs. Is he certain? Did he satisfy himself, beyond the possibility of a doubt, that in each case, from which he drew any deductions, the bite was a legitimate one? Did he hold, or have held, the snake and make it bite some soft vulnerable part of the dog? If not, his experiments, as a test of the efficacy of his treatment, are unreliable.

I hold it to be a *sine quâ non*, in testing the value of any remedy for snake-bite, that the bite shall be beyond all doubt a legitimate one; and so long as any doubt under this head exists, so long must the test as such be regarded as worthless.

Experiments on the influence of snake poison and on the injection of certain fluids into the venous circulation as antidotes and on the application of the ligature and actual cautery.

BY J. FAYRLER, M. D., C. S. I.

Present—DR. FAYREER, DR. EWART, Professor of Physiology, and MR. SCEVA.—June 12th, 1869.

EXPERIMENT No. 1.

A fowl was bitten in the thigh by a spectacled cobra that had been kept in confinement for some weeks, had bitten before, and was, therefore, not fresh. The fowl was bitten at 3 P. M.

At 3-1-50.—Fowl staggering; fifteen drops of strong Condry's solution, furnished by Messrs. Scott, Thompson and Company, was injected with the hypodermic syringe into the fowl's thigh.

3-2-50.—Fell down paralysed.

3-4.—Lies almost dead; just breathing.

3-5.—Convulsed.

3-7.—Dead.

Death occurred in seven minutes; but the bird was evidently unconscious after the first 2½ minutes. I could not recognise any good effect from the injection.

EXPERIMENT No. 2.

The left crural vein of a dog was exposed, ready to receive the injection. The dog was then bitten by a cobra in the right thigh at 3-20 P. M. The cobra was not fresh, it had been in captivity for some time, and had bitten before; but it was tolerably vigorous.

3-23.—Dog is excited and restless.

3-24.—Same condition; whining.

3-27.—Much excited; trying to break loose; is salivated; breathing hurried.

3-37.—Is beginning to show signs of the influence of the poison; is slightly convulsed; falls over.

3-37-30.—Injected 60 drops of liquor ammoniæ sp. gr. '959 into the crural vein; followed immediately by convulsive twitchings of mouth and limbs.

3-42.—Lying down, very low, almost motionless; irregular action of the heart; injected 40 drops more of the liquor ammoniæ.

3-43.—No change; heart's action very feeble.

3-44.—Lies perfectly still, as though dead: no respiration; heart beats very irregularly 35 pulsations in 30 seconds.

3-45.—Dead.

Post-mortem examination of body at 4-20 P. M. Lungs pallid; no congestion. Heart right side much distended with black clots. Left ventricle contained a little dark fluid blood; The viscera generally were pallid; but the liver was somewhat congested. Brain—cerebral substance free from congestion; vessels on surface slightly distended with blood. The blood generally coagulated firmly.

EXPERIMENT No. 3.

The external jugular vein of a dog was exposed at 3-34 P. M.; 40 drops of the liquor potas permanganat (Condy's) was injected into the vein at 3-35.

No effect produced at the time; the dog did not appear to take any notice of the injection.

3-40.—Dog apparently not affected.

3-45.—Seems rather depressed, but this is not marked; it may be fear.

3-48.—Bitten by a large cobra (not fresh, for it has been some time in captivity, and has bitten before) in the thigh. The lang punctures were at once washed with the Condy's solution, which was well rubbed in.

3-49.—Bitten leg partially paralysed.

3-50.—Lying down; when raised can stand, but quickly lies down again; is quite intelligent.

3-51.—Droops his head.

3-52.—60 more drops of the fluid injected into the vein.

3-54.—Two drams injected into the bowel; is able to sit or stand, but is very weak.

The injection of the Condy was not followed by convulsions, as in the case of the liquor ammoniæ.

3-58.—Lies down; head falls over; breathing hurried; rises and staggers a little and sits down again.

4 P. M.—Lies sluggish and dejected; can walk when raised, but staggers and soon sits down again.

4-5.—Can still stand and walk with staggering gait.

4-7.—Lying down, but gets up and walks a few steps; head drooping, and look dejected; twitching of muscles generally.

4-8.—When put on his legs can still stand; breathing hurried; coat staring.

4-12.—40 more drops injected into jugular vein.

Slight twitching of muscles generally; lies down on his side; cannot rise; limbs paralysed; pupils dilated; slight convulsions of extremities and muscular system generally, breathing catching and rather slow.

4-22.—Motionless, heart still beats 50 in the minute, no respiration.

4-24.—Heart still felt.

4-25.—Dead.

• Bitten at 3-18; dead at 4-25, in 37 minutes

Death occurred in about the usual time, and with the usual symptoms in which it occurs when a dog is bitten by a cobra. I do not believe the effects of the poison were in any way influenced by the permanganate.

Post-mortem at 4-40 P. M.—Lungs much collapsed and very pallid. Both sides of heart full of fluid blood; great vessels distended. The blood coagulated firmly when let out of the heart and vessels. Abdominal viscera not so pallid as in the other dog. Brain vessels on surface full of blood. cerebral substance pale, scarcely any puncta.

EXPERIMENT No. 4.

A fowl bitten by a cobra (not fresh) in the thigh at 4-15 P. M; 20 drops of liquor ammoniæ having previously, at 4-43, been hypodermically injected into the thigh, no apparent effect produced by the ammonia thus injected. Bitten by the cobra at 4-45 P. M., in 30 seconds it was in violent convulsions

4-46.—20 more drops injected.

Dead before it could be placed on the ground.

EXPERIMENT No. 5.

The following experiments were tried with the object of again testing the effect of the Cobra poison on itself, or on another cobra.

A cobra was bitten sufficiently near the tail to avoid the chance of injuring any of the viscera by another full-grown, fresh, and vigorous cobra. The snake bit deeply, plunging its fangs twice or thrice into the flesh of the other cobra, which was then put aside in a separate cage, and watched.

13th, 6 A. M.	..			No change.
„ 7 P. M.	.	.		do.
14th, 6 A. M.	..	..	...	do.
„ 6 P. M.	...	...	...	do.
15th, 6 A. M.	...	...	...	do.

The snake evidently has not suffered.

EXPERIMENT No. 6.

A vigorous and fresh full-grown cobra, with one ocellus in the hood (Kuntiah of the natives) was made to bite himself three or four times near the tail at 4-48 P. M. He bit himself quite as freely as he would have bitten another snake, brought blood, and smeared the surface with poison; put into a cage and watched.

Was not the least affected on the 15th, three days after the bite.

These two experiments, which were very carefully performed, tend to prove that the cobra cannot poison itself or its own species.

Present—DES. FAYRER, EWART, WALLER, and MR. SCEVA.— June 19th, 1869.

EXPERIMENT No. 7.

A full-grown cat was bitten at 2-43 P. M. in the right thigh by a large Daboia. The snake had been long in captivity, and was therefore most probably not vigorous, though active and vicious.

2-49.—Twitching of the muscles; restless.

3-12.—The cat appears to be unaffected.

3-15.—The Daboia again made to close his jaws on the cat's thigh, though evidently unwilling to bite.

3-44.—The cat seems sluggish, and is evidently now feeling the poison.

3-45.—Bitten by a cobra on the thigh.

3-46.—The cat is unsteady in its gait; breathes hard; looks distressed.

4-7.—Cat is restless; tries to rise, and staggers.

4-10.—Tries to stand, but falls over.

4-18.—Respiration very hurried; cannot stand; twitching of the muscles.

4-24.—Lies quite paralysed; pupils dilated; breathing hard.

4-27.—Convulsed.

4-30.—Dead.

The cat was bitten by the Daboia at 2-43 P. M., and again at 3-15. The snake was old and feeble; it has been in captivity for more than six months, during which time it has touched neither food nor water, and yet it was active and vicious, hissing fiercely at any one who came near it; that it was capable of secreting poison was evident in later experiments.

The cobra bit at 2-45; and death occurred at 4-30; that is, in one hour and forty-seven minutes. The cobra was also not fresh, and its poison was weak, perhaps scanty. There was nothing whatever in this experiment to make us think that the cobra's poison proved antidotal to that of the Daboia; on the contrary, it rather expedited death.

EXPERIMENT No. 8.

A fowl was bitten in the thigh by the same Daboia at 3-40. The snake would not bite until his jaws were closed on the bird's thigh.

3-44.—The fowl, whilst walking about with rather a sluggish gait, suddenly sprang off the ground, and fell over in convulsions. It was immediately bitten in the thigh by a cobra. It continued unconscious and convulsed, and was dead at 3-46; that is, in six minutes after it was bitten by the viper. Had this viper been fresh, the bird would probably not have lived one minute.

EXPERIMENT No. 9.

Another fowl bitten by the same Daboia at 3-56 P. M.

3-58.—It limps; has a depressed look, and its comb droops.

3-59.—Bitten by a cobra in the thigh; lies down.

4-2.—Slight convulsions.

4-3.—Comb livid; convulsed and unconscious.

4-5.—Dead in nine minutes.

These three experiments, I think, dispose of the question of the poison of one family of venomous snakes being antidotal to the other.

In these cases the viper was old and exhausted, and yet his poison was deadly. The poison of the cobra, which was also a partially exhausted snake selected on purpose, had no counteracting effect. The only thing proved is the terribly deadly nature of the Daboia, which, after such long confinement without food or water, yet retained the power of causing death.*

These experiments were made in reference to certain suggestions that have appeared in the journals, but not with any expectation on my part that any other result than that which occurred could take place. The poison of the deadly snakes, of whatever family, kills by paralysing the nerve centres, and it appears as reasonable to expect prussic acid to prove antidotal to aconite, as the cobra poison to be so to that of any other form of venomous snake.

EXPERIMENT No. 10.

A fowl was bitten by the same Daboia in the thigh at 4-7 P. M.

4-10.—Sitting down; looks sluggish.

4-15.—Rises and runs about, but is lame.

4-27.—Walks, but is very lame on the bitten leg.

4-45.—Still walks about, but is sluggish and lame, and looks very dejected.

* The Daboia was not intentionally deprived of food or water; it would take neither.

The fowl, after this, began to recover, and on the 21st, two days later, was quite well. The snake was evidently all but quite exhausted when he bit this bird.

EXPERIMENT No. 11.

The external jugular vein of a dog was exposed at 8-6 P. M., and four drops of cobra-poison were injected; at least one drop was lost, the other three entered the vein.

8-10.—Dog looks dejected, and ears drooping; he lies down.

8-33.—Beyond being sluggish, no symptoms of poisoning.

8-46.—Very sluggish; lies down.

8-47.—Liquor ammonia, sp. gr. .959, 60 drops, injected into jugular vein; dog lies quiet. Heart beating rapidly; respiration very feeble.

8-54.—Heart's action very rapid; breathing rapid; muscular twitchings.

8-57.—Injected 60 more drops into the vein; muscular twitchings continue.

8-59.—Dead.

Poison injected at 8-4; death at 8-59. Death in 55 minutes. The quantity of poison was very small from a weakened snake; no effect was produced by the ammonia.

EXPERIMENT No. 12.

The jugular vein was exposed in a dog; it was then bitten in the thigh by a fresh cobra at 8-27.

8-28.—Staggering; excited; springing; howling violently, and trying to break the cord by which it is tied.

8-29.—Quiet; sitting down.

8-30.—Head drooping.

8-33.—Lying on its side, slightly convulsed; sixty drops of a solution of quinine, of the strength of one grain in eight drops, was injected into the jugular vein.

8-34.—The dog lies on its side, still slightly convulsed.

8-35.—Dead.

Bitten at 8-27; dead at 8-35, in eleven minutes. The quinine evidently did no good.

EXPERIMENT No. 13.

Equal parts of cobra-poison and liquor ammonia, sp. gr. .959, were mixed together, and fifteen drops of the mixed fluid were injected with the hypodermic syringe into a pigeon's thigh at 4-30 P. M. Pigeon crouched immediately; at 4-31 was unable to stand; the beak resting on the ground.

4-32.—Convulsed: peculiar convulsive movements of the tail continuing.

4-32.—Dead.

Injected at 4-30; death at 4-32, in two minutes. This experiment is very unfavorable to the theory of the antidotal action of liquor ammonia.

EXPERIMENT No. 14.

The external jugular vein of a large and powerful dog having been exposed, 10 drops of fresh cobra-poison were injected into it at 4-24 with the hypodermic syringe.

4-24-30.—The dog staggered, was convulsed, and fell over foaming at the mouth.

4-25.—Violently convulsed, but with no outcry or sign of suffering.

Sixty drops of liquor ammonia, sp. gr. .959, injected. Dead.

Death occurred in about 70 seconds, showing the frightful virulence of the poison when it finds entry by a large blood vessel.

How can such a death be explained otherwise than by exhaustion of the nerve centres? Any theory of blood-change is surely totally inapplicable here.

Present—DR. FAYLER, DR. EWART, Professor of Physiology, and DR. SCEVA.—June 26th, 1869.

EXPERIMENT No. 15.

A pariah dog was bitten in the fore-arm by a cobra (Kalla Keutia) at 3-2 P. M.

A ligature had been thrown round the limb above the bitten part, which was immediately tightened; a pointed steel, heated to a red heat, was then, at 3-3 P. M., inserted into the punctures, and the wounds were thoroughly cauterized.

3-7.—The dog is restless, and is apparently under the influence of the poison.

3-12.—Staggers as he walks.

3-14.—Forty drops of liquor ammonia, sp. gr. .959, diluted with three parts of water, were injected into the jugular vein.

3-17.—The dog runs about excited; he was partially convulsed during the injection of the ammonia; now sits up, and then falls over backwards, breathing quickly.

3-20.—Lies down; is salivated.

3-27.—Sits down; paws the air; muscular twitchings.

3-38.—Lying on his side; convulsed.

3-44.—Lies paralysed; heart still beats, but no respiration.

3-45.—Dead.

Notwithstanding the ligature, which was tightened immediately, the actual cautery, which also immediately followed the cobra's fangs, and the injection of ammonia into the venous circulation, the snake-poison proved fatal to a full-grown dog in forty-three minutes.

EXPERIMENT No. 16.

A dog was bitten by a fresh cobra (*Kalla Keutia*) in the fore-arm at 8-38 P. M.; a ligature was immediately tightened round the limb above the wound. The actual cautery was at once applied, until the fang wounds and the adjacent parts were completely disorganized.

3-42.—The dog is sitting, but reels as though he would fall over.

3-49.—Rises and walks with a staggering gait.

3-54.—Sits down; attempts to get up, and falls over backwards.

3-57.—Is convulsed; falls over; cannot stand; hurried breathing.

4-4.—Cannot move; lies paralysed; heart still beating; respiration almost ceased; pupils widely dilated.

4-6.—Lies on his side; convulsed.

4-12.—No respiration; but heart still beats feebly.

4-13.—Dead.

In this case also, notwithstanding the ligature, which was applied as tightly as two persons could pull it round the leg, and the deep and thorough actual cauterization, immediately after the bite, the snake-poison found entry into the system, and proved fatal in thirty-five minutes. The dog was much smaller than that of the first experiment.

Nothing, it seems to me, can more strongly demonstrate the extremely subtle and virulent nature of the cobra-poison than those experiments; nothing, I think, is more significant of the improbability of anything proving to be an antidote. If the poison find entry into the blood vessels, and be carried to the nerve centres, I am inclined to believe that nothing can prove of any avail, excepting in those cases where the bite is imperfect, the quantity or the quality of the poison diminished or deteriorated, or the snake itself is young, weak, exhausted, or is one of less poisonous family; such, I believe, are the only cases in which recovery occurs through the inherent vigour of the animal or person bitten, perhaps, aided by stimulants and excitement. The favourable result is attributed, and naturally enough, by those who do not understand the *modus lædendi* of the venom, to the treatment and the so-called antidote. That we can aid in such recoveries, and that we may do much to help the sufferer through the troubles arising from general disorder and secondary blood poisoning, I have no doubt; and I would offer every encouragement to all to persevere in their attempts. But I must state my conviction that nothing that can properly be called an antidote to cobra or viper poison exists; and the more this is known the better, for mistaken notions on such an important matter can only do harm, and may be the cause of losing rather than of saving life.

My belief is that, if an animal, and probably a man, be fairly bitten by a fresh and vigorous cobra or Daboia, it, or he, will inevitably succumb, unless some immediate and direct method of arresting the entry of the poison into the circulation be practised.

That such may be done, I will not deny; but the two experiments just recorded, performed with the greatest care and speed by the moment of time that intervenes between the injection of the snake-poison by the powerful maxillary muscles through the tube-like fang into the minute blood vessels of the part, and the application of the ligature and actual cautery, is sufficient to allow a small quantity may prove fatal. The ligature is evidently very unreliable when applied to large parts of the body, such as the limbs; for it is almost physically impossible to compress the part so tightly as to stop the circulation; and unless this be done to the depth of the penetration of the snake's fangs, it is obvious that it can only be of very partial effect in preventing the entry of the poison. On a finger or a toe the ligature might be of more service, as the smaller part might be thoroughly strangulated; but unless the ligature were applied immediately, it is obvious that it would be useless even there, for the poison would have already entered, and be on its course towards the nerve-centres. How quickly this occurs is proved by those experiments in which the poison was injected directly into the jugular vein. What took place there, with the hypodermic needle inserted into the jugular vein, has its exact counterpart in the case of the cobra's fang, inserted, as it must be, when it penetrates a vascular part, into the minute veins.

The same may be said of the actual cautery. Unless the hot iron enter the puncture directly after the fang has been withdrawn, the poison is already far on its way towards the centre, and the burning, though it destroys the tissues and such of the poison as may not yet have entered the circulation, can have no influence on that which is already beyond its reach.

But as the ligature, if tightly and quickly applied, and the actual cautery, if promptly and and thoroughly inserted, must limit to a certain extent the entrance of the poison, both should be had recourse to as speedily and efficaciously as possible, in the hope that the amount of poison left to find, or that may have already found its way into the system, may be less than is sufficient to cause death.

To conceive of an antidote in the true sense of the term, to snake-poison, one must imagine a substance so subtle as to follow, overtake, and neutralize the venom in the blood, or that shall have the power of counteracting and neutralizing the deadly influence it has exerted on the vital forces. Such a substance has still to be found, and our present experience of the action of drugs does not lead to hopeful anticipation that we shall find it.

But I repeat that, where the poisonous effects are produced in a minor degree, or when the secondary consequences are to be dealt with, we may do much to aid the natural forces in bringing about recovery. This is not, however, what is meant by an antidote.

EXPERIMENT No 17.

A large and powerful dog had the right external jugular vein exposed. Twenty drops of a mixture of fresh cobra-poison, taken from the snake the same day, one part, and liquor ammoniac, sp. gr. .959, forty drops or two parts, was then injected with the hypodermic syringe into the vein. The time of the insertion of the fluid was 4-27-30. The effect was instantaneous; the dog struggled, howled, and was convulsed on the table; he was immediately released and placed on the ground, but was already almost unconscious and convulsed. He made an effort to rise on his legs, and fell prone on his belly. Within one minute respiration had ceased, though the heart's action continued faintly. This ceased, and at 4-30 A. M. he was quite dead. The action of the poison with the ammonia was frightfully rapid in this case. Death occurred in two minutes and a half; complete unconsciousness within a minute; and only by the faint beating of the heart, which only continued for two and a half minutes, was any sign of life manifested. This surely is fatal to the theory of ammonia injected into the circulation being of any benefit in snake-poisoning. In this case the poison and the so-called antidote were injected synchronously; the result was almost instant death.

The experiment was performed by Dr. Ewart and myself, with the greatest care, and certainly no air entered the vein.

EXPERIMENT No 18.

The cobra that bit the dog in the first experiment bit a fowl in the thigh at 3-46 P. M. The bird immediately began to limp, and then crouched, and then fell over.

3-47.—Head fallen over, beak resting on the ground.

3-48.—Convulsed; dead.

Death occurred in three minutes.

A second fowl was bitten by the same snake, at 3-50 P. M., in the thigh.

3-51.—Drooping his wings.

3-55.—Sits down, beak resting on the ground.

3-57.—Is convulsed.

4. P. M.—Dead in ten minutes.

A third fowl bitten by the same snake in the thigh at 3-51 P. M., shortly after drooped.

3-58.—Convulsed.

4-2.—Dead.

Dead in 11 minutes.

A fourth and larger fowl bitten in the thigh by the same cobra at 4-3 P. M.

4-8.—Crouching; wings spread out; gets up; tries to run, and falls; head droops, beak resting on the ground.

4-10.—Convulsed, 4-17.—Still convulsed; comb livid.

4-20.—Dead in 17 minutes.

A fifth fowl bitten in the thigh by the same cobra at 4-13 P. M. 4-20.—Crouches; comb drooping.

4-24.—Head drooping, resting on beak. 4-29.—Quite paralysed; convulsed.

4-35.—Dead in 22 minutes.

A pigeon was bitten in the thigh by the same cobra at 4-37 P. M.

4-47.—The pigeon is drooping, and, when he stands, it is on one leg, and then falls over again.

5-22.—Dead in 45 minutes.

This was the ninth animal bitten by the cobra in rapid succession, and still it is apparently not quite exhausted.

A sixth fowl bitten in the thigh by the same cobra at 4-32 P. M.

4-35.—Crouching. 4-47.—Staggers.

5-45.—Lying down insensible.

6-5.—Dead in 99 minutes.

A seventh fowl bitten by the same cobra in the thigh at 4-34 P. M.

4-37.—Crouches. 4-47.—Seems sluggish, and limps.

27th June, 5-30 A.M.—Lying down, and eyes half closed; unable to walk.

28th June, 6 A. M.—Is recovering; walks sluggishly and limps, but is evidently regaining strength.

The object of this experiment was to test the extent of power possessed by the cobra. It destroyed one dog, six fowls, and a pigeon in rapid succession, but the intervals between the bite and the death of each was prolonged, showing the gradual diminution of power at each bite. The seventh fowl poisoned was only slightly so, and recovered.

The cobra was neither a very large nor a very vigorous one, and yet how deadly! Eight creatures destroyed by a rapid succession of bites. The experiment proves that the snake becomes weaker by biting until quite exhausted.

EXPERIMENT No. 19.

A Daboia was bitten by a fresh cobra (Kalla Keautia) near the tail, sufficiently far from the viscera. The scales were previously scraped off. The snake bit fiercely and repeatedly at 4-54 P. M.

6 P. M.—No change.

On the 28th June, at 6 A. M., there was no change.

The object of this experiment was to repeat the test of the influence of the cobra-poison on the viper. The result tends to show that it is innocuous.

Dr. Shortt, Superintendent General of Vaccination, Madras, who had interested himself in the treatment of snake-bites for several years, was asked by the Government of Madras to give his opinion on the subject. The following are his remarks:—

From the ancient repute that ammonia and its preparations have had as an antidote, I tested it repeatedly and carefully on several occasions in the following manner:—

- I. By mixing liquor ammoniæ with the cobra poison, and injecting it hypodermically into animals.
- II. By injecting liquor ammoniæ itself, hypodermically, into snake-bitten animals.
- III. By administering the liquor ammoniæ by the stomach and bowels to snake-bitten animals.
- IV. By the injection of liquor ammoniæ, as suggested by Professor Halford, into the veins of snake-bitten animals, and I regret to state that, notwithstanding the utmost care and repeated experiments on the lower animals, the ammonia failed completely to restore such animals to life.

In addition to the various experiments conducted by myself at different times and places, on the 14th January at my house in Madras, before Dr. Mackenzie, the late Inspector General, Indian Medical Department, and some twenty Medical Officers, and at the Madras Medical College Theatre, on the 29th January 1870, in the presence of most of the Professors of the College, several Medical Officers, students, and other gentlemen, I demonstrated to their satisfaction, I believe, by experiment on animals the complete failure of the liquor ammoniæ as an antidote by injection into a vein.

My experience of the liquor ammoniæ as an antidote by injection into the veins is simply confined to the lower animals, as I have not had the opportunity of testing it in man; but the uniform evidence given of its success by some twenty medical men after trial on the human subject in Australia, as given in this pamphlet, startles me at the miraculous cures said to be effected, as moribund patients have not only recovered, but were, upon their legs, able to partake of food and walk off to their houses after recovery from the snake-poison in an incredibly short time.

Dr. Halford, in the pamphlet alluded to, enters largely on the hypothetical action of ammonia in the human system; and however ingeniously argued, this is a mere matter of theory, into which it is not my province to enter, as I prefer confining myself to practical facts, the result of my personal experiments.

The result of my experiments on the poisoned blood in testing it, both physically and chemically, proves that the poison enters the system and destroys the integrity of the blood in snake-bitten animals when they have been fairly bitten and a due proportion of poison injected into the wound, and any antidote to prove effective must be capable of overtaking the poison in the blood as it circulates in the living system and there neutralize it chemically, for this is the only way in which both facts and experiments tend to confirm.

The liquor ammoniæ has universally been used as a diffusible stimulant generally, and therefore recommended in snake-poison; but, as far as my personal experience extends, it does not seem to be of any particular value, as I consider brandy a more reliable remedy; from being a powerful stimulant, it tends to support the system where freely administered, and rapidly enters the circulation, rouses up the nervous energy rendered dormant by the poison, and admits of time for the administration of a chemical remedy, should such exist.

Dr. Halford states at page 11 of his pamphlet that "ammonia and brandy thrown into the system is not absorbed;" this is contrary to my experience in the cases that have come under my immediate notice. I have had no difficulty in bringing the system under the influence of brandy by frequent doses administered by the mouth and bowels where necessary, so as to bring the snake-bitten patient rapidly under its influence; and at page 18 Dr. Halford admits "that liquor ammoniæ has no chemical action over snake-poison."

It further strikes me that, if even the ammonia really proves so valuable a remedy, the injection of it into the veins can be undertaken by very few non-professional persons in the absence of a Surgeon, as they will not possess the *nerve* or the skill to free a vein and introduce the nozzle of a syringe into it, and it is stated that "the parts slough if the ammonia be split."

Liquor ammoniæ and brandy have been fairly tested in the human subject for the snake-bite, and the hypodermic injections of the ammonia also, but it has never as yet been injected into a vein; this has yet to be tried in man, whilst it completely failed in the lower animals, not only in my own experiments, but in that of other medical men in Calcutta.

In conclusion, I would remark, with reference to that part of Dr. Halford's experiments as given in the above pamphlet, where the ammonia was injected into the heart of dogs, not only to prove its innocuousness, but also its power of counteracting the narcotic effects of chloroform, that these experiments appear to me inconclusive, as the animals were not permitted to live sufficiently long to ascertain any deleterious action the liquor ammoniæ may have produced on them: this is absolutely necessary ere pronouncing so confident an opinion as that given by Dr. Halford.

The following is the abstract of the opinions of certain Medical Officers in the Punjab, who were consulted on the subject by the local Government.

Dr. Willmot, Medical Officer of Gurgaon, states that during the month of September 1871 a case of snake-bite came under his observation. It was that of a tailor boy, about 14 years of age, who had been bitten in the finger by a small brown-colored snake, called by the natives "Haffai," but most probably a "Krait." No treatment was of any avail, and the boy died about 20½ hours after he had been bitten. Ammonia and other stimulants were given with milk, and, after parts affected had been punctured, was also applied to the skin. A ligature was tied round the wound when the boy was admitted, and he was kept awake as long as possible. Dr. Willmot is of opinion that all treatment in this case was useless, and inclines to the belief that the only treatment likely to be useful in similar cases would be to exhaust the air external to the wound by cupping-glasses, or, better still, by sucking the wound immediately after infliction. In the present case cupping-glasses could not be applied, as the part bitten was the finger.

Dr. Cooper states that he has not had an opportunity of testing Professor Halford's method of treatment in cases of snake-bite, but will do so when he has, as he believes that the injection of ammonia into the blood will prove successful.

Dr. Massey, of Jullundur, holds that the numerous experiments made by Dr. Fayrer at Calcutta prove that there is no known antidote for the poison of a venomous snake. He considers that the safest, and probably the only reliable, remedy in snake-bite is immediate excision, and application of strong nitric acid to the wound, together with stimulants, and all other remedies calculated to support the system while throwing off the poison.

Dr. Cox, of Muzaffargarh, states that he has no opinion to offer, as the plan of treatment advocated has not been tried; but from the fact that slight cases of snake-bite were relieved by the internal use of liquor ammoniæ, he believes that the hypodermic use of the medicine would effect all the results attributed to it by Professor Halford.

Dr. Castello, of Derah Ismael Khan, has no opinion to offer, as he has not tried the treatment advocated. He, however, states that he has tried advantageously the internal use of ammonia after excision and cauterization of the bitten part and neighbourhood.

The Resident at Hyderabad consulted Dr. J. C. Howard of Oomraotee and Dr. A. Porter of Akola, and the following is an abstract of their opinions:—

Dr. Howard states that, since the receipt of the circular and pamphlet, no cases of snake-bite have been brought to any of the dispensaries in Oomraotee, and that, consequently, no special report can be made from practice there. He, however, adds, from his own experiments and observations, that neither ammonia nor liquor potassa administered internally, nor transfusion, will be found a specific for the cobra bite. What liquor potassa or ammoniæ may do for the bite of the diamond or tiger-snake of Australia he cannot say; it may be that the virus of these snakes is less deadly than the Indian cobra, but it is certain that all the experiments with these two drugs in India by Dr. Shortt and many other medical men have had little success. Given by a young, strong, 15 months' cobra, with his poison sac well filled, himself thoroughly aroused through irritation, his fangs entire and his bite perfect, with a twist of his neck and head, and a delay of from 5 to 7 or 10 minutes, before excision, cupping, and stimulants can be adopted, Dr. Howard asserts most positively the bitten individual will be a dead man. The so-called cure for snake-bites (cobra) is purely a myth, and may be attributed—1st, to the reptile having had its fangs broken or destroyed by fighting or biting some tough objects; 2nd, to the poison sac being empty, the virus having been expended, and the reptile exhausted.

The cobra (supposing the bite to be from a reptile of that class, which is in numerous cases supposed, and not substantiated by fact) may bite, but not effectually; the cobra may raise its hood and head, and, darting forward, strike the object, and most probably nip without ejecting the poison, which fact can

only be judged by the vicious mouthful the reptile takes, and the twisting of its head and neck generally to the right side, at which moment the poison is ejected by pressure on the sac, along the duct through the hollow fangs into the wound. The only remedy is excision, free and full, ligatures between the heart and the wound, suction by the mouth or cupping, the application of ammonia or liquor potassa to the wound, and free stimulants even to semi-intoxication, *but these measures must be adopted before the poison has completed the round of the circulation*, and the delay will considerably affect the results.

Dr. Howard adds that he has had no experience in the hypodermic measures and transfusion of remedial agents, such as ammonia and liquor potassa, and he is not therefore prepared to give a satisfactory opinion, but, judging from analogy, he says that any great delay in the adoption of these measures must be fatal to the bitten individual, and their action must be stimulant, and not specific. The backwoodsmen of America, when bitten by a poisonous snake, make up gunpowder with water into what is commonly designated a "devil," which, like the surgical "Mosca," is placed over the part and set fire to, thereby destroying a considerable portion of flesh and the poison always, provided the measure is used quickly and in time.

Dr. Porter, of Akola, states that a number of recoveries from snake-bite are recorded in this pamphlet after the injection of ammonia into the veins, but there is nothing to show that the persons bitten would have died if left without treatment. On the other hand, Dr. Fayrer of Calcutta and Dr. Shortt of Madras have shown by repeated experiments that animals effectually bitten by the poisonous snakes of India die as surely under the above treatment as if left alone.

No. 5366
76G, dated the 23rd August 1872.

From—The Hon'ble E. W. RAVENSCROFT, Acting Chief Secretary to the Government of Bombay,
To—The Officiating Secretary to the Government of India, HOME DEPT.

With reference to Mr. Under-Secretary Wellesley's letter No. 2935, dated 19th ultimo, I am directed to state, for the information of the Government of India, that the Inspector General, Indian Medical Department, has reported that no opinions on the subject of Dr. Halford's treatment of snake-bite have yet been received from the Medical Officers of this Presidency.

In Bombay itself, very few cases have been admitted into the hospitals for treatment, the natives having no faith in our remedies, and preferring recourse to charms. In one instance, Professor Halford's plan of injecting ammonia into the veins was tried without success. As, however, instructions have been issued to treat every case of snake-bite by injecting ammonia, it is hoped that further proofs of its effects may hereafter be collected.

No. 349A, dated the 7th February 1872.

From—C. A. ELLIOTT, Esq., Officiating Secretary to the Government of the North-Western Provinces,
To—The Secretary to the Government of India, HOME DEPT.

In reply to your letter No. 3153, dated the 27th June last, I am directed to state that

Dr. Hilson, Bijnour.
Mr. Edwards, Commissioner, Jhansie.
Dr. Tomkyns, Bareilly.
" Watson, Almorah.
" Planck, Sanitary Commissioner.
" Jameson, Allahabad.
" Grant, Futtehgurh.
" Garden, Saharunpore.
" Waghorn, Mirzapore.
" Hinton, Moozuffernuggur.
" Prentis, Goruckpore.
" Sherlock, Etawah.
" Loch, Bareilly.

Dr. Jones, Allahabad.
" Christison, Agra.
" Cockburn, Benares.
" Harris, Shaljehanpore.
" Collison, Moradabad.
" Condon, Cawnpore.
" W. Moir, Meerut.
" Smith, Nynee Tal.
" McDermott, Banda.
" Milne, Bareilly.
" Hooper, Benares.
" Pilcher, Agra.

the 25 copies of the pamphlet by Professor Halford, of the Melbourne University, on the treatment of snake-bite, therewith forwarded, were distributed to the gentlemen named on the margin, who were requested to report whether, in their opinion, the remedy proposed would be efficacious in this country.

2. These officers have now replied, but none of them have any practical knowledge of the subject, except Drs. Hilson and W. Moir, whose reports I am to submit, for the information of the Right Hon'ble the Governor General in Council.

3. The other gentlemen consulted refer generally to the failure of the experiments made by Dr. Fayrer to test the same remedy, and to the difficulty of applying the proposed remedy, if found beneficial, by any but practical hands, on account of the delicacy of the instruments required, but they all think that further experiments on its efficacy should be tried.

No. 254, dated the 6th December 1871:

From—A. H. HINSON, Esq., M. D., Officiating Civil Surgeon, Bijnour,
To—The Officiating Secretary to the Govt., N. W. Provinces.

I have the honor to acknowledge receipt of your letter No. 4547 A, dated 16th October 1871, together with a copy of a paper read by Professor Halford before the Medical Society of Victoria, on a new remedy for snake-bite, on which you desired to have my opinion.

2. I have not had any opportunity of trying it on the human subject, but have recently made some experiments on the lower animals, with a view to test the efficacy in cases of cobra bite, and the result I now beg to submit.

3. My observations have been limited entirely to the bites of the cobra di capello, which, besides being the best known, and, perhaps, the most deadly of all the venomous snakes in the North-Western Provinces, is the cause of more mortality than any other species.

4. The krait (*Bungarus coeruleus*) and one or two others, though reputed to be almost as deadly as the cobra, are seldom met with, and are not well known to the natives generally.

5. Ammonia in some form or other, but chiefly as *cau de luce*, has been the standard antidote for all kinds of snake-bites for upwards of a century, and has hitherto been administered internally by the mouth. Dr. Richardson, of London, a few years ago showed that it could be injected with safety directly into the circulation; but it is to Professor Halford that belongs the merit of having first suggested this mode of administration to counteract the influence of snake-poison on the system.

6. Judging from the number of successful cases recorded as having occurred in Australia, it was to be expected that some benefit would follow the application of the remedy in India; but, as far as I have been able to try its effects by experiments on the lower animals, including the dog, the goat, and the ass, it does not seem to have any power of averting, or even of retarding, the accession of fatal symptoms after cobra bite.

7. In some of these experiments, an account of which is appended, the ordinary liquor ammoniac of the British Pharmacopœa was used, and in others the liquor ammoniac, *à fortiori*, of specific gravity, 891, procured for the purpose from the Medical Dépôt at Allahabad.

8. It was injected both before and after the toxic action of the poison had manifested itself on the system, and sometimes the injection was repeated several times before death, yet the only effect ever produced was a temporary acceleration of the heart's action.

9. I have also been unable to verify Professor Halford's observations on the changes said to take place in the blood from the presence of the snake-poison.

10. He alleges, *1st*, that the blood loses its power of coagulating, and argues from this that the poison causes a decrease of one of its constituents, the fibrine; *2nd*, that the white cells of the blood become more numerous, enlarged, and nucleated.

11. Dr. Fayrer's recent experiments have demonstrated that the coagulability of the blood is only destroyed by the poison of the viperine class of snakes, while that of the colubrine class, to which the cobra belongs, does not possess this power.

12. This accords with my own experience, for I invariably found that the blood coagulated firmly after exposure to the air, showing that the cobra poison at least exercises little influence in diminishing to any appreciable extent either the quantity or the vitality of the fibrine.

13. But even if the blood remained fluid, it would scarcely be possible to found any special argument on such a coincidence, because a similar fluidity is often observed after death from lightning, from many narcotic poisons, and, in fact, from any obstruction of the respiration.

14. The changes which the white cells of the blood are said by Professor Halford to undergo after cobra bite have been described by him in the *British Medical Journal* (July 20th, 1867), where a diagram of them is also given. But the metamorphosed condition of these cells, he says, is not easily seen, and often escapes the eye of good microscopists.

15. In all my experiments the blood was carefully examined with a microscope magnifying 530 diameters, sometimes during the life of the animal, sometimes immediately after its death, and sometimes several hours subsequently, yet I must confess that any enlarged or nucleated white cells I never could detect.

16. On the contrary, these bodies could nearly always be seen presenting their normal appearance and dimensions, and existing in their proper numerical proportion to the red corpuscles. In only one instance did they ever seem to be slightly increased in numbers. I failed also to see any change in the blood of the goat, the white cells of which are very conspicuous objects in the field of the microscope, owing to the small comparative size of the red corpuscles in that animal ($\frac{1}{32}$ of an inch in diameter.)

17. Regarding the *modus operandi* of the remedy, Professor Halford does not explain his views very clearly. While admitting that it is not a chemical antidote, he suggests that by acting as a powerful central and peripheral stimulus, it puts a stop to certain molecular changes which he supposes to be going on in the blood.

18. That any such changes occur at all is an hypothesis, in support of which no facts are adduced, and it is evident, from the importance which he attaches to the stimulation of the heart or central organ, that he regards this as the main object to be attained in effecting a cure.

19. The question, therefore, arises—does a person bitten by a snake die from the paralyzing influence of the poison on the heart? Because, if not, it seems superfluous to stimulate that organ.

20. That the heart's action is depressed when the patient becomes comatose cannot be doubted; but it appears to me that the *cobra poison* exercises its baneful influence chiefly on that part of the cerebro-spinal system from which proceed the motor nerves of the voluntary muscles, including those concerned in the act of respiration.

21. Any one who watches attentively an animal dying from cobra bite cannot fail to observe that paralysis of the voluntary muscles first sets in, and that the pulse, although it may intermit, beats with considerable force almost to the last, and for some minutes after the respiration has completely stopped. Moreover, when the thoracic viscera are subsequently examined, they present all the characteristic signs of death from asphyxia in a most marked degree.

22. In the case of the Keeper at the Zoological Gardens, London, who was bitten by a cobra in 1852, the Medical Officers of the University College Hospital, where he was brought for treatment, regarded the paralysis of the limbs and the difficulty of breathing as the most alarming of all the symptoms, and at once resorted to galvanism and artificial respiration.

23. This man was bitten on the bridge of the nose. "When brought to the hospital about half an hour after the accident, he was apparently dying, being unable to speak, livid, the heart's action feeble, and he was scarcely conscious. After death, which took place in little more than an hour, the right cavities of the heart were loaded with dark blood, the left being empty; indeed, all the phenomena of asphyxia were strikingly marked."—(Erichsen's Science and Art of Surgery, page 146.)

24. It is the same in the lower animals, in which paralysis of the voluntary muscles, and consequent difficulty of breathing, commences long before consciousness is obliterated, and before the heart is enfeebled to such a degree as to be incapable of performing its functions with economy.

25. Viewing, therefore, the rapidity of the action of the cobra poison on the medulla oblongata and spinal cord as the chief characteristic of that poison, while the higher encephalic ganglia are only secondarily involved, let us see how the bite of an Australian snake affects the system.

26. I have had no experience with the snakes of that country; but, judging from the 20 cases recorded in Professor Halford's paper, it is evident that the influence of their poison is excited chiefly on the cerebrum, producing deep insensibility or coma. It will be observed that in only one of these 20 cases, the 14th, is any mention made of paralysis; and Professor Halford, at page 9, in describing the symptoms, does not allude to any action of the poison on the medulla oblongata or spinal cord. "In all the cases," he says, "brought before you to-night, the functions of the cerebral ganglia and higher sensorium were completely in abeyance, or for a time extinct;" in other words, the functional activity of the cerebrum and ganglia of the special sense was entirely suspended.

27. It is doubtless this difference in the action of the two poisons that accounts for the success that has followed the ammonia treatment in Australia, and its failure in this country.

28. Professor Halford asserts his belief that equal quantities of snake-poisons are equally virulent, no matter to what species the snake may belong; but the fact remains that the cobra-bite usually proves fatal in less than three hours, while persons bitten by Australian snakes generally survive 8, 12 or even 27 hours (*vide* cases 8, 18, and 19), and sometimes the symptoms of poisoning do not supervene for 12 hours after the bite has been inflicted (*vide* case 19).

29. We may infer, too, that the various kinds of snake-poisons differ not only in point of virulence, but also in their mode of affecting the system; for we find the cobra unable to poison itself, or one of its own species, while the rattlesnake possesses this power; besides, the train of symptoms which ensue from the bite of the latter are essentially different from those produced by the cobra.

30. The stimulation of the heart by injecting ammonia into the veins cannot possibly be of the least service if the respiration is in any way obstructed; for it is well known that un-oxygenated blood passes with great difficulty through the pulmonary capillaries, and for this reason I think the remedy will never prove successful in cases of cobra-bite. We must always bear in mind the maxim of Cullen—"to obviate the tendency to death,"—and the tendency to death by cobra-bite is undoubtedly by asphyxia.

31. But even were the remedy of undoubted efficacy, it is not likely that it would ever be of much practical utility in a country like India, because its administration requires the use of a delicate instrument handed with some professional skill, and the great mass of the people are a long way removed from proper surgical assistance; besides, the cobra-bite proves so rapidly fatal (generally in less than three hours and often in one) that the sufferer has little time to seek medical aid.

32. All the antidotes which have hitherto been proposed for this dangerous affection are essentially empirical, and aim at neutralising the poison while it is circulating in the blood. The injection of ammonia is also intended to effect this end indirectly by stimulating the heart.

33. With the exception of arsenic, when given in cesium skin diseases, we scarcely possess any therapeutic agent that has the power of destroying a poison circulating in that fluid, and in nearly all diseases in which the blood is contaminated with a *materies morbi*, we endeavour to eliminate it from the system by stimulating the excretory organs to increased action. This, however, cannot be done in most cases of snake-bite in India, because the powers of life are so rapidly overwhelmed that there is no time for the natural efforts of the system to come into play.

84. Local treatment, such as excision of the bitten part, or the application of a powerful escharotic when speedily resorted to, may be attended with some degree of success, as Professor Fayer has shown; but all internal remedies have hitherto failed.

85. Experiments Nos. 7 and 11 were made with a view to test the efficacy of two so-called antidotes which were sent to me,—one by a Native, and the other by a European: both were found perfectly inert.

86. If ever any remedy is discovered, it will probably be found to consist of some substance producing on the nerve centres an effect directly antagonistic to that of the snake-poison, and there can be little doubt that recent researches on the action of opium in cases of poisoning by *datura*, and of the calabar bean in poisoning by strychnine, point out the right path to be pursued by any one in search of the much-desired antidote.

Experiments to test the efficacy of injecting liquor ammonia into the veins in cases of snake-bite, by A. H. HILSON, Esq., M. D., Officiating Civil Surgeon,—dated Bijnour, the 6th December 1871.

1st experiment, 18th September 1871.—At 8-19, a healthy, young full-grown pariah dog was bitten on the nose by a large and vigorous spectacle-marked cobra. On being taken away from the snake he stood for about a minute, and then lay down and commenced licking the bite with his tongue. He remained in this state for about 12 minutes, apparently quite unaffected by the poison, but never attempting to rise.

8-33 A. M.—He became restless, frequently changing his position, but never rising on his feet.

8-35 A. M.—Restlessness much increased, and occasional convulsive twitches of the tail.

8-38 A. M.—Limbs paralysed, cannot stand.

8-39 A. M.—Tried to rouse himself when called on, but, being unable to stand, fell over on his side.

8-40 A. M.—Convulsions of the limbs and mouth; pupil much dilated.

8-41 A. M.—Micturated and fœces involuntarily passed.

8-43 A. M.—Injected 25 drops of liquor ammonia* into the saphena vein of the right thigh.

8-44 A. M.—Convulsions continue.

8-47 A. M.—Again injected 25 drops of liquor ammonia into the saphena vein.

8-47½ A. M.—Dead in 28½ minutes.

The cobra was captured on the 31st August in my fowl-house, where it had regaled itself upon three ducks' eggs after killing a hen that was hatching them.

The blood was examined immediately after death and found to be fluid, but no change could be noticed with the microscope. The white cells presented their normal appearance, and were not found in greater numbers than in healthy blood; the red corpuscles were not altered in shape or colour, but showed little tendency to become piled in rows. About two ounces of dark fluid blood were taken from the right side of the heart about 10 minutes after death and placed in a small unglazed earthenware pot; in seven or eight minutes it coagulated firmly, the clot adhering so tenaciously to the vessel that it did not fall out when inverted. The blood which escaped into the cavity of the thorax also coagulated. The venous system seemed gorged with dark fluid blood, which showed no tendency to coagulate until exposed to the air. Both sides of the heart were distended with dark fluid blood, and the liver and kidneys were also much congested and of a darker tint than usual. Rigor mortis occurred two-and-a-half hours after death. Scarcely any trace of the bite could be seen externally after death.

Temperature at the time of experiment 83° Fah.

2nd experiment at 7-25 A. M. on the 21st September 1871.—A large spectacle-marked cobra struck at a full-grown pariah dog and inflicted a wound on its nose. A portion of the outer skin was torn off, and blood was seen to flow immediately after the cobra struck; yet the dog remained quite unaffected beyond appearing somewhat lazy and inclined to be down. Next day it was alive. The cobra struck also at the dog's leg, but did not inflict any wound. The snake had been confined for about three weeks in a *gurrah*, and during that time had not eaten nor drunk anything. He did not appear very lively, but when irritated, raised his head, expanded the neck, and struck vigorously.

Luckily the remedy was not applied in the case, otherwise erroneous conclusions might have been drawn.

3rd experiment at 7-59 A. M. on the 24th September 1871.—A full-grown, healthy pariah dog was bitten on the side by the same cobra as in No. 1. The bite left scarcely any mark externally, and was discovered with difficulty. For 10 minutes afterwards the dog showed no signs of anything being wrong, not even when walked about.

8-12 A. M.—However, he appeared to be lazy and lay down.

8-16 A. M.—Legs partially paralysed, and unable to control their movements.

8-19 A. M.—Making water involuntarily; injected 20 drops of liquor ammonia B. P. into the saphena vein of the left leg; this produced no apparent effect; the dog remained lying on its side, breathing slowly.

8-21 A. M.—Pupils widely dilated; dog cannot stand.

* The liquor ammonia was that supplied by the Government to the Charitable Dispensaries, and is the ordinary liquor ammonia of the British Pharmacopœia.

- 8-24 A. M.—Convulsed; injected into the same vein 20 drops of liquor ammonia B. P.; no apparent effect produced.
- 8-29 A. M.—Injected 20 drops of same solution into the right saphena vein; no effect produced.
- 8-31 A. M.—Laid bare the external jugular vein on the right side of the neck and injected 20 drops of same solution; no effect apparently.
- 8-33 A. M.—Dog apparently lifeless; he lay quite motionless and could not be roused; no movement of the muscles of respiration could be noticed; the pupil was widely dilated, and the eyelids did not respond when the eye was pricked, but the heart was found to be beating feebly and irregularly.
- 8-38 A. M.—Commenced artificial respiration.
- 8-42 A. M.—Injected 17 drops of liquor ammonia into the right jugular vein; heart's action slightly increased.
- 8-45 A. M.—Heart still beating irregularly.
- 8-48 A. M.—Ditto ditto.
- 8-53 A. M.—Ditto ditto.
- 8-57 A. M.—Heart still beating.
- 9-4 A. M.—Heart beating feebly.
- 9-5 A. M.—Artificial respiration being still continued, I made an aperture in the left side of the thorax, through which I could see the heart beating slowly and irregularly.
- 9-6 A. M.—Injected 20 drops of liquor ammonia into the right ventricle. This was followed by vigorous and greatly accelerated action of the heart; the blood being propelled with some force along the arteries.
- 9-8 A. M.—Put an end to the experiment by opening the femoral artery, from which blood of a dark colour spouted in considerable quantity.

The blood coagulated quickly and firmly on exposure to the air. Temperature of air in the shade 84° Fah. The blood, however, remained fluid for some time, if not exposed to the air. All the blood vessels of the heart having been ligatured, and organ having been detached, the blood it contained was found to be quite fluid at 9-34 A. M.

The lungs were somewhat congested, and did not crepitate on pressure. A quantity of frothy blood oozed from them when cut, the cut surface showing dark points where veins of any size had been cut. The liver was of a very dark colour, and the membranes of the brain were slightly congested, but the other organs of the body did not present any change worthy of notice. Rigor mortis set in 2½ hours after death. No abnormal appearance could be noticed in the blood, which was examined immediately after death and also eight hours afterwards.

4th experiment at 7-10 A. M. on the 28th September 1871.—At 10 minutes past 7 A. M. a large spectacle-marked cobra bit a fine healthy pariah dog (full-grown) savagely on the tail.

- 7-14 A. M.—Dog appears unaffected.
- 7-17 A. M.—Ditto; pupils not dilated.
- 7-19 A. M.—Ditto ditto.
- 7-20 A. M.—Emptied the bowels voluntarily.
- 7-21 A. M.—Has lost the power of controlling the movements of his limbs; staggers like a drunken man when walking, and places his legs wide apart when standing.
- 7-22 A. M.—Urinated voluntarily.
- 7-23 A. M.—Breathing slowly; slight frothing at the mouth.
- 7-26 A. M.—Slight convulsions.
- 7-26½ A. M.—Injected 20 drops of liquor ammonia B. P. into the external jugular vein.
- 7-27 A. M.—Convulsions continue; movements of respiration not perceptible.
- 7-29 A. M.—Injected an additional 20 drops into jugular vein.
- 7-29¼ A. M.—Commenced artificial respiration, which was not discontinued until death.
- 7-33 A. M.—Slight convulsion; heart beating with considerable force, but somewhat irregularly.
- 7-35 A. M.—Slight convulsion; heart still beating.
- 7-40 A. M.—Heart still beating.
- 7-43 A. M.—Ditto.
- 7-47 A. M.—Ditto.
- 7-52 A. M.—Ditto.
- 7-58 A. M.—Ditto with considerable force.
- 8-4 A. M.—Injected 20 drops of liquor ammonia; no effect.
- 8-5 A. M.—Heart stopped; dead.

Blood coagulated as soon as taken out of the body and exposed to the air.

Microscopically it presented its normal characteristics. No change whatever could be noticed either in the contour or numbers of the white cells.

Rigor mortis supervened 2½ hours after death. Temperature of the air 80°.

5th experiment. No treatment.—At 7-33 A. M. a full-grown pariah dog was bitten on the foreleg by a small spectacle-marked cobra.*

* This was a fresh newly-caught cobra.

- 7-40 A. M.—Unaffected, except that he walks lame with the bitten leg.
- 7-46 A. M.—Holding up the wounded limb, in which he seems to suffer a little pain; no signs of the poison acting on the system.
- 8-1 A. M.—Lies down, and has lost control over the muscles of his limbs; staggers much when made to walk.
- 8-2 A. M.—Lying down and cannot be persuaded to move.
- 8-4 A. M.—Changes his position.
- 8-5 A. M.—Legs appear paralysed; respirations 28 per minute, regular.
- 8-6 A. M.—Appears to be sensible, and endeavours to get up when called upon.
- 8-7 A. M.—Appears sensible, and wags his tail when called on; respirations 32 per minute; expirations somewhat prolonged and forced.
- 8-8 A. M.—Appears sensible; wags his tail when called on.
- 8-9 A. M.—Micturated involuntarily.
- 8-10 A. M.—Respirations, laboured, 28 per minute.
- 8-11 A. M.—Again micturated involuntarily.
- 8-12 A. M.—Frothing at the mouth; wags his tail when called on; eyelids contract when the eye is touched.
- 8-13 A. M.—Gurgling noise in the throat at each inspiration; convulsive twitching of the mouth.
- 8-16 A. M.—Micturates, and passes fæces involuntarily.
- 8-18 A. M.—Respirations 20 per minute, laboured; pupils widely dilated.
- 8-19½ A. M.—Pulse 74, regular and of fair strength.
- 8-20 A. M.—Eyelids do not contract on application of a stimulus.
- 8-21 A. M.—Respiratory movements almost imperceptible.
- 8-22 A. M.—Pulse 60°, somewhat irregular and weaker; respiration ceased.
- 8-24 A. M.—Apparently quite dead; heart's action imperceptible.
- 8-26 A. M.—An aperture was made in the chest and the heart exposed. Its contractions had ceased, and both the auricles and ventricles were distended with blood. The pulmonary arteries were also distended. The blood in all the cavities had the same dark fluid appearance and coagulated firmly soon after exposure to the air. The lungs were of a light scarlet colour, and on making a section of them, dark venous blood oozed from the divided pulmonary vessels. There was no congestion of the blood vessels of the scalp or duramater, but the arachnoid contained a considerable quantity of effused serum.
- Arborescent streaks of venous congestion were noticed following the sulci between the convolutions of the cerebrum. On making a section of the substance of the brain, no abnormal appearance was observable. All the abdominal viscera were healthy looking. On examining the blood immediately after death, no abnormal appearance could be detected. The red corpuscles were of their usual size and numbers, and also the white cells.
- Rigor mortis occurred about three hours after death.
- Temperature at the time of experiment 79°.
- In this case no treatment was adopted, so that the action of the unalloyed poison might be observed, and it will be noticed that the symptoms were identical with those observed in other experiments when ammonia was injected.
- 6th experiment, October 16th, 1871.—At 7-46 A. M. a medium-sized cobra* bit a full-grown pariah dog on the leg (left hind).
- 7-47 A. M.—Runs lame on the bitten leg, which it holds up.
- 7-52 A. M.—Injected 20 drops of liquor ammonia into the right external jugular vein, which was exposed for the purpose.
- 7-53 A. M.—Heart's action accelerated, but otherwise the animal is apparently unaffected; no symptoms of poisoning.
- 7-56 A. M.—Bowels opened voluntarily.
- 7-57 A. M.—With the exception of the lameness, dog is apparently quite unaffected.
- 8-4 A. M.—Injected again into the same vein 20 drops of the liquor ammonia, which produced acceleration of the pulse, but no other visible effect.
- 8-6 A. M.—Appears quite unaffected.
- 8-7 A. M.—Frothing a little at the mouth.
- 8-9½ A. M.—Micturated copiously and voluntarily.
- 8-10 A. M.—Lay down; staggers when walking.
- 8-11 A. M.—Heart beating irregularly.
- 8-12 A. M.—Injected 50 drops of liquor ammonia B. P. into the same vein.
- 8-13 A. M.—On being released tried to stand, but cannot.
- 8-14 A. M.—Eyelids close on touching the eye.
- 8-15 A. M.—Gasping for breath; heart's action very irregular; eyelids still retain their sensibility to impression.
- 8-16 A. M.—Injected 20 drops liquor ammonia B. P. into the same vein.
- 8-18 A. M.—Breathing very irregularly and in gasps; convulsive movements of the trunk; extremities remaining motionless.
- 8-21 A. M.—Pulse 118.
- 8-22 A. M.—Respiratory movements quite imperceptible.

* Fresh newly-caught cobra from Dhanpore.

- 8-23 A. M.—Heart beating.
 8-24 A. M.—Ditto rapidly.
 8-25 A. M.—Ditto feebly and irregularly.
 8-26 A. M.—Dead. Temperature 77°.

Examined blood corpuscles and found no change.

7th experiment to test the efficacy of secret remedy furnished by a Native.—Native remedy administered. Symptoms supervened in 29 minutes. Dead in 46 minutes.

Healthy, full-grown pariah dog bitten on the right forefoot at 8 A. M. on the 17th by a large cobra,—the same used in experiment No. 1. At 8-2 A. M. a secret medicine, consisting of a yellowish green powder, composed evidently of sulphur and sulphate of iron, with some pounded herb, was mixed with some warm water and administered to the dog by a Native hukeem who has some reputation in Bijnour as a curer of snakebites. After the medicine was given the animal appeared quite unaffected, except that it walked very lame on the bitten leg.

8-6 A. M.—He administered a small bolus, about the size of a bean, containing some medicine mixed with sugar.

8-10 A. M.—Dog apparently quite unaffected; growls when approached; some warm water administered.

8-15 A. M.—Walking very lame on the bitten leg.

8-22 A. M.—No symptoms indicating that the poison was acting on the system.

8-27 A. M.—Micturated voluntarily.

8-29 A. M.—Lay down; appears disinclined to move about.

8-30 A. M.—Passed fæces; walks unsteadily.

8-32 A. M.—Cannot walk, endeavours to rise, but cannot stand; apparently quite sensible and shuts the eyelids when anything is put suddenly in front of the eye.

8-34 A. M.—Respirations 26 per minute.

8-36 A. M.—Appears choked; a rattling noise accompanies each expiration; heart's action irregular; eyelids still sensitive to impressions.

8-43 A. M.—Respiratory movements imperceptible.

8-45 A. M.—Heart beating rapidly, 80 per minute.

8-46 A. M.—Dead in 44 minutes.

Post-mortem examination.—No change in appearance, or numbers of blood corpuscles, or white cells. Heart distended on both sides with dark fluid blood, which coagulates on exposure to air. The peristaltic movements of the intestines were plainly observable ten minutes after death. All the venous system was engorged with blood. Temperature of air 76°. Bitten part somewhat swollen, and a good deal of ecchymosis round the wound. No effect whatever was produced by the medicine.

8th experiment on the 1st November 1871.—Symptoms supervened in 2 hours 25 minutes. Dead in 2 hours 53 minutes.

At 8-40 A. M.—A full-grown donkey was bitten on the side of the belly by a large cobra (the same used on the 17th). A little blood oozed from the wound, which became somewhat swollen and painful on pressure, but no toxic symptoms set in until 11-5 A. M., when the animal became drowsy and lay down quietly without resting his head on the ground.

11-15 A. M.—The drowsiness increased somewhat and the forelegs trembled; on being urged he made several efforts to rise, but did not succeed; on being placed on his legs he remained standing with the forelegs trembling and the head slightly depressed.

11-20 A. M.—Remains standing; some stringy saliva oozing from the mouth; lower lip hanging down; eyelids sensible to impressions, and, when a piece of chappatee was placed near the mouth, he seized, but did not masticate it; heart beating slowly, but regularly; breathing slow, and expiration forced by the action of abdominal muscles; slight convulsive movement of the muscles of the neck.

11-20½ A. M.—Fell down heavily, all his legs seeming to give way at once; made no attempt to get up, and rested the head on the ground.

11-21 A. M.—Breathing laboriously with expanded nostrils.

11-23 A. M.—Injected* 20 drops of liquor ammonia into the saphena vein, which did not produce any effect whatever.

11-25 A. M.—Breathing very heavily.

11-27 A. M.—Injected 20 drops of liquor ammonia into the left jugular vein, which had been previously laid bare; no effect produced.

11-29 A. M.—Breathing imperceptible; heart still beating, but slowly and feebly.

11-30 A. M.—Apparently dead, but heart still beating.

11-33 A. M.—Heart ceased to beat.

11-33½ A. M.—Made an opening rapidly in the thorax, and exposed the heart, which contracted when scratched with the nail, or pricked with a needle.

* Used liquor ammonia *fortior*, British Pharmacopie, specific gravity .891. Obtained from Medical Depot, Allahabad.

11-34 A. M.—Injected 20 drops of liquor ammonia into the right ventricle, which caused one or two feeble contractions.

11-36 A. M.—Injected an additional 20 drops of liquor ammonia into the right ventricle, which was followed by no result. The blood was examined microscopically immediately after death, and one or two of the six or eight samples examined seemed to have rather more than the usual number of white cells; but these were not swollen, nor could there be seen any of the appearances alleged by Professor Halford to occur in the blood after cobra-poisoning,—*vide* Aitkins' *Science and Practice of Medicine*, page 713, vol. I. The condition of the internal organs was the same as that seen in dogs after cobra bite; but in this case, the effusion of serum on the surface of the brain was greater than usual. Blood coagulated on exposure to air; temperature at the time of experiment 81°.

Death did not take place in this case until nearly three hours had elapsed, which is attributable to the snake having been used about fourteen days before, and having eaten nothing in the interval. Besides this, it bit the rope by which the donkey was fastened about three minutes before biting the donkey itself, and, probably in doing so, a portion of the poison was expended. A cobra is capable of killing a much larger animal than a donkey in less than three hours. Mr. LeMaistre, a resident of this station, assures me that on one occasion *he saw* a cobra bite a cow belonging to him, and that the latter died before he could get an iron heated with which he intended to cauterise the wound, so that death most probably ensued within one hour. It is worthy of notice, too, how long the animal in this case remained apparently quite unaffected, and how rapidly it died after the toxic symptoms first showed themselves.

9th experiment on the 4th November 1871.

8-50 A. M.—A young and almost full-grown goat was bitten on the left ear by a small cobra.

9-1 A. M.—Much inclined to lie down, but rises when food is offered to it; heart beating regularly; hind legs trembling.

9-6 A. M.—Injected 20 drops of liquor ammonia into the external jugular vein; no apparent effect.

9-9 A. M.—Lies down.

9-11 A. M.—Refuses to eat.

9-12 A. M.—Can still walk.

9-18 A. M.—Frothing at the mouth; respiration embarrassed.

9-19 A. M.—Injected 20 drops of liquor ammonia* into the same vein; no effect produced.

9-20 A. M.—Unable to stand.

9-22 A. M.—Again injected 20 drops of liquor ammonia; no effect produced.

9-23 A. M.—Convulsive movements of limbs and tail; breathing carried on almost entirely by the diaphragm; eyelids still sensible to impressions; heart beating slowly and irregularly.

9-27 A. M.—Injected 20 drops of liquor ammonia into the same vein.

9-28 A. M.—Heart beating slowly; eyelids still sensible to impression.

9-31 A. M.—Respiratory movements imperceptible.

9-34 A. M.—Heart ceased to beat; dead.

9-34½ A. M.—Opened the thorax rapidly, and, on scratching the heart, it beat feebly once or twice.

9-35 A. M.—Injected 20 drops of liquor ammonia into the left ventricle; no effect produced. The blood was fluid, and coagulated on exposure. Internal *post mortem* appearances similar to those seen in dogs and donkey. No changes could be noticed in the appearance of the white cells of the blood. In the goat the red corpuscles are very small, being about one-half the size of man's, while the white corpuscles are of nearly the same dimensions as in other vertebrate animals, and are very conspicuous in the field of the microscope. I examined them minutely, but could not detect any abnormal appearance.

10th experiment, November 8th, 1871.—At 8-46 A. M. a full-grown dog was bitten on the inside of the thigh by the same cobra which bit the donkey on the 1st November. The snake bit with much reluctance and riot, until he had been irritated for about ten minutes.

Until 9-30 the dog appeared quite unaffected, with the exception that he seemed inclined to lie down. The respirations at the time were 22 per minute. The bitten part did not swell much, and the dog did not show any signs of pain. I then left him.

10-22 A. M.—I returned, having been informed that the toxic symptoms had set in.

10-24 A. M.—The pulse was 96 and regular, and the animal was lying quietly on his side; he could stand when raised, but could not walk.

10-26 A. M.—The respirations were 28 per minute, and the movements of the chest appeared unembarrassed.

10-28 A. M.—Injected 20 drops of liquor ammonia *fortior*, British Pharmacopœia, specific gravity .891, into the jugular vein after laying it bare. This produced no effect, or at most a temporary acceleration of the heart's action, which did not last longer than a minute.

10-30 A. M.—Pulse 82, regular and full.

10-32 A. M.—Respirations 36 per minute, unembarrassed.

10-33 A. M.—Cannot stand when put upon his legs.

* Liquor ammonia *fortior* of the British Pharmacopœia, specific gravity 0.891.

10-36 A. M.—Injected 20 drops of liquor ammonia into the jugular vein; no effect produced beyond some acceleration of the heart's action.

10-37 A. M.—Opened the jugular vein, and abstracted about six ounces of blood.

10-40 A. M.—Injected 20 drops of liquor ammonia into the vein of the opposite side, after which the heart's action increased in force and frequency, and the dog struggled a good deal.

10-41 A. M.—The breathing becoming embarrassed, artificial respiration was resorted to.

10-45 A. M.—Moves the ear by reflex action when a stimulus is applied to it.

10-48 A. M.—Pulse 64, irregular.

10-49 A. M.—Respirations 22 per minute, and expirations forced, tongue hanging out of the mouth, from which saline is flowing.

10-52 A. M.—Poured 15 drops of liquor ammonia, diluted with an ounce of water, into the throat; but it is questionable if any found its way into the stomach, as the animal was unable to swallow.

10-55 A. M.—Breathing imperceptible; laid bare the wall of the chest over the heart, and injected 20 drops of liquor ammonia into that organ. As soon as the point of the syringe touched the heart, vigorous contractions followed. The ammonia also excited strong contractions. The animal is apparently dead, but the heart still continues to beat.

10-59 A. M.—Dead; heart stopped acting.

11 A. M.—Injected 20 drops into the heart; no result. On opening the chest the venous system was, as usual, found gorged with dark fluid blood, but both sides of the heart contained large, firm, darkly-coloured clots, when examined five minutes after death. Ammonia has the property of retarding the coagulation of blood, so in this case probably the presence of the tube of the syringe in the cavities of the heart may have caused the coagulation. It is possible, too, that a very small quantity of air may have been injected with the ammonia. On examining the blood microscopically, no abnormal appearances could be detected.

In this case the snake bit feebly and reluctantly. It had not eaten anything for a month, and had bitten thrice or four times in that period, so it is possible there was a deficiency of poison in the fangs. The toxic symptoms did not come so rapidly, or with such severity as in the other experiments, yet the injection of ammonia seemed to produce no effect beyond exciting the heart's action for about a minute.

Six ounces of blood were taken from the jugular vein to relieve the heart from distension at 10-37, and, at 10-40, 20 drops of ammonia were injected without any good result, even when accompanied with artificial respiration. When the remedy was injected into the heart itself, it did not seem to have any better power of averting the fatal termination, and when the heart's action had stopped, ammonia failed to renew it, although injected within a minute after cessation of cardiac movements.

11th experiment, November 18th, 1871.—At 8-40 A. M. a full-grown pariah dog was bitten very savagely on the hind leg by a small spectacle-marked cobra.

8-43 A. M.—Five pills of a snakebite remedy, furnished by Mr. A. M. Cameron, of Agra, and alleged by him to have cured "upwards of 1,600 persons bit by every variety of snakes," were administered in a small quantity of ghee.

8-57 A. M.—The dog began to stagger and show other signs of the poison affecting the system.

8-58 A. M.—Five more pills were given in a little ghee; the dog swallowing them with some difficulty.

8-59 A. M.—Cannot stand.

9 A. M.—Breathing with difficulty, and occasional convulsive movements of the limbs.

9-6 A. M.—Respiratory movements of the chest imperceptible.

9-10 A. M.—Heart ceased to beat; dead.

The medicine was administered according to directions furnished by Mr. Cameron. The stomach of the dog was examined after death, and the pills were found broken up and mixed with the contents of the viscus. One pill only was found in the esophagus. The medicine had apparently no effect whatever.

12th experiment, November 22nd, 1871.—At 8-5 A. M. a strong, old pariah dog was bitten on the hind foot by the same cobra used in the last experiment.

8-20 A. M.—Made a deep incision on the cardiac side of the bite, and applied strong nitric acid freely to both the incision and bite after scarifying the latter.

8-25 A. M.—Administered 15 drops of liquor ammonia by the mouth, after which the dog was chased about an enclosure, and kept constantly on the move.

8-30 A. M.—Appears somewhat lazy and disinclined to move, otherwise quite unaffected. He did not appear to suffer much pain in the bite, and never held up the leg when walking; but the temperature of the bitten limb was much higher to the touch than the other.

8-32 A. M.—Administered 15 drops of liquor ammonia again by the mouth; no perceptible effect.

8-43 A. M.—Administered 15 drops again; no effect; dog kept continually on the move.

8-52 A. M.—Appears very lazy and inclined to lie down.

8-55 A. M.—Cannot control the movements of his limbs, and staggers when walking.

- 8-56 A. M.—Administered again 15 drops of the ammonia; no effect.
- 8-58 A. M.—Cannot stand, appears quite conscious, and tries to rise when urged, but cannot; pupils somewhat dilated.
- 9-5 A. M.—Cut down on the carotid artery and exposed it. The blood which flowed from the wound was crimson, and coagulated in two or three minutes after exposure to the air, and it was noticed that the blood never assumed a dark tinge until the respiration became impeded. Some of the blood taken fresh from the body was now examined with the microscope, but no abnormal appearance could be observed.
- 9-25 A. M.—Injected 20 drops of ammonia directly into the heart, which was followed by acceleration of the pulse for a short time (about a minute): the dog also struggled a good deal for the same period.
- 9-27 A. M.—Respirations 16 per minute.
- 9-29 A. M.—Pulse 120, regular, and of moderate strength.
- 9-32 A. M.—Winks the eye when touched.
- 9-46 A. M.—Pulse 98.
- 9-47 A. M.—Respirations 12 per minute.
- 9-53 A. M.—Breathing stertorous.
- 9-55 A. M.—Respirations 9 per minute, laboured.
- 9-56 A. M.—Pulse 98, intermitting.
- 10-3 A. M.—Respirations 9 per minute.
- 10-4 A. M.—Pulse 94, intermitting.
- 10-9 A. M.—Gasping for breath and struggling.
- 10-10 A. M.—Pulse 88.
- 10-12 A. M.—Movements of respiration not perceptible.
- 10-15 A. M.—As the dog was almost dead, an end was put to the experiment by severing the carotid artery, from which blood of a dark colour spouted with force.
- 10-16 A. M.—The chest was opened, and the heart found beating, and it continued to beat for a minute, the right auricle contracting after all movement had ceased in other parts of the heart.

The snake bit very effectively, keeping its fangs fixed in the skin for some seconds; but it had been used in an experiment four days previously, and probably it did not possess a large supply of poison. To this it was due without doubt that the dog lived longer than usual, because neither the application of nitric acid nor the administration of ammonia seemed to produce any beneficial effect. On opening the heart the left ventricle was found empty, while the right side contained some frothy blood. The lungs and all the organs of the body presented an ex-sanguine appearance owing to the loss of blood; but the chief points to be noticed in the experiment are, that the blood did not assume a dark colour until the breathing became impeded, and that the heart preserved the power of contracting to the very last, even although deprived of the stimulus, which the presence of a proper quantity of blood in its cavities affords.

The ammonia in this case was administered by the mouth.

No. 92, dated 10th November 1871.

From—W. MOIR, Esq., M. B., A. M., Civil Surgeon, Meerut,
To—The Offg. Secy. to Govt., N.-W. Provinces.

I have the honor to acknowledge receipt of Mr. Mackintosh's letter No. 884, dated 28th August 1871, forwarding a pamphlet by Professor Halford on the treatment of snake-bite for the expression of my opinion on the subject.

2. Before offering any remarks on it, I was desirous of trying one or two experiments illustrating the effects of the treatment recommended by him in snake-bite, and it was only a few days ago that I succeeded in obtaining a poisonous snake, and was enabled to test the efficacy of his mode of treatment; hence the delay in submitting this letter.

3. Professor Halford records in the pamphlet 20 cases of snake-bite, out of which 17 were successfully treated by the injection of liquor ammonia into the vein, and three proved fatal.

4. I observe that his 1st, 16th, 18th, and 19th cases are the only ones where the interval between the bite and the application of the remedy is given; it was four hours in the 1st and 16th, between seven and eight hours in the 18th case, and about twelve hours in the 19th, which proved fatal; and as it was only a "supposed" case of snake-poison, it ought not to have appeared in this list at all. The 20th case also proved fatal, which is accounted for by the fact that brandy had been freely employed in the first stages of the treatment, and the ammonia only in the last. The 8th case, he says, is doubtful, and the 10th showed symptoms of drunkenness rather than of snake-poisoning.

5. With the exception of these first five cases, no information whatever is given regarding the interval that elapsed between the infliction of the bite and the application of remedial measures; nor is it stated in any one instance what part of the body was bitten, nor is any instance noted of the marks of teeth having been observed by the operators, nor of the escape of blood from the wounds.

6. Neither is any account given of the behaviour of the patients until they are described as being "comatose," "sinking," "insensible," "cold," "totally paralysed," &c., &c. No idea is imparted as to the time when these symptoms manifested themselves, nor what were the progressive symptoms, nor the physical signs of the action of the poison.

7. In only three of the 20 cases is the species of snake noted, and only one of the 20 patients was seen by Professor Halford himself.

8. The omission of these points is so important that it is impossible to form a correct judgment of the true nature of the cases, and it deprives the record of much of its value and interest, both physiologically and pathologically. Had these omissions been supplied, one could have formed some notion of the severity of the bite, and of the influence of the medicine employed in the treatment, but the grounds for enabling one to arrive at certain conclusions on these points are entirely wanting.

9. Were it possible to make strict investigation into all the circumstances connected with these alleged recoveries from snake-poisoning by the injecting of liquor ammonia into the venous blood, one would not be surprised to find that in more instances than one the patients had never actually been bitten by a snake at all, and that in others, though bitten, the snake had been of a harmless species.

10. Such cases occur in the practice of almost every medical man. While at dinner one evening a few years ago I was suddenly called away by the cries of a punkah-coolie in my verandah, who had, he stated, just been bitten by a cobra on the dorsum of the foot. He had been lying asleep, and felt a prick which awoke him, and, looking up, he saw a snake running away. At once his cries became so loud and piteous that in two minutes he had all the servants standing in a circle round him, lamenting his fate, which they believed was death. I found him looking most anxious and depressed; his breathing laboured and abdominal.

I carefully examined the foot and all the exposed parts of his body, but could see not a trace of the bite, nor abrasion of the skin anywhere.

I assured him the snake had done him no harm, and showed him he had not been bitten; but to make his assurance doubly sure, I had some liquor ammonia applied to the part, and by degrees his mental anxiety and depression subsided. Next morning he was at his work as usual.

Here imagination produced some of the symptoms and physical signs of the introduction of serpentine virus into the human system; and, had the coolie's statement been relied on, and liquor ammonia been injected, a cure might have been reported from its use.

11. From the data furnished by Professor Halford, it is impossible to decide whether any, or, if any, how many, of his recoveries are due to imaginary bites, or to bites from harmless species, or to partial bites from really venomous snakes; but that the effects of the ammonia treatment are attributable to one or other of these causes, I am unable to see any reason for doubt.

12. Careful experiments were conducted to renew it, although initiated by Dr. J. Fayrer, C. S. I., been attended with very different results. The liquor ammonia when injected into the arms than good, so far was it from effecting a cure.

This was not Dr. Fayrer's opinion alone; the different medical men who were present, and assisted him in his experiments arrived at the same conclusions as to the complete inability of liquor ammonia, when injected into the venous blood, to counteract in any degree the effects produced by the poison of venomous snakes on the bodies of living animals.

13. Professor Halford would have done much to establish the soundness of his practice had he experimented on the lower animals with the poison of snakes as others have done, and restored them to health when evidently under the influence of the virus which others have failed to do by following his mode of treatment. He contents himself by saying at page 18 of this pamphlet "a great series of experiments on apparently dying people had been done over the colony, at his suggestion and with remarkable success." This is unsatisfactory and inconclusive, as *apparently dying* is a delusive expression.

14. That I might test for myself in some measure the conclusions obtained by others, I performed two experiments with cobra poison, and would here note the details. I was assisted by Sub-Assistant Surgeon Troyluckonath Ghose and Hospital Assistant Rohcemoollah in making these experiments.

15. *First experiment on a dog of ordinary size.*—Snake, a well-grown cobra, fresh, and full of vigour, bit most freely the inside of both thighs of a dog at 1-32 P. M.

1-35 P. M.—Dog convulsed; eyes staring.

1-36 P. M.—Pupils dilating.

1-37 P. M.—Biting at the rope by which he was bound.

1-39 P. M.—Lies depressed from the effects of the poison.

1-43 P. M.—Defecating and micturating quite unconsciously.

1-44 P. M.—Dead, just 12 minutes after he was bitten.

Second experiment on a young, lively dog about a year old.—Bit at 2-31 P. M. on the thorax by the same cobra.

2-32 P. M.—Struggling as if in pain; fifteen minims of liquor ammonia, British Pharmacopœia, were injected into the left femoral vein.

2-36 P. M.—Greatly excited; breathing hurried and panting; walking about with unsteady gait.

2-39 P. M.—Lies down.

- 2-45 P. M.—Rises up; gait very unsteady.
 2-46 P. M.—Staggers greatly.
 2-47 P. M.—Lies down, over-powered; breathing forced and almost entirely abdominal.
 2-48 P. M.—Is conscious when spoken to, but cannot rise.
 2-50 P. M.—Breathing stertorous; convulsed; fifteen minims of liquor ammonia were again injected into the right femoral vein; no effect produced.
 2-52 P. M.—Micturating unconsciously.
 2-55 P. M.—Limbs moving; pupils much dilated; dying.
 3 P. M.—Dead in 29 minutes.—(Dated Meerut, the 3rd November 1871.)

16. The first dog was furiously bitten, and was so speedily and so completely under the influence of the venom that he never raised his head nor attempted to stand up, but began to sink instantaneously. My object in this case was chiefly to prove the virulence of the poison.

The second dog was less freely bitten and only in one place; not more than an hour had elapsed since the cobra had expended a large quantity of his poison, yet death resulted in 29 minutes. In the course of a minute after the bite 15 minims of liquor ammonia, British Pharmacopie strength, were injected into the femoral vein, which I had exposed before the cobra was brought out; it produced much excitement for about five minutes, followed by depression, and when stertorous breathing began, the injection was repeated without any visible effect.

It was at this stage of paralysis that Professor Halford's cases usually began to be treated, and the results were very different from mine; his apparently dying men immediately getting up and walking about, while the dog continued unconscious to the last.

17. The results I obtained accorded so well with those recorded by Dr. Fayer in his numerous experiments that I deemed it unnecessary to multiply mine. I think it is proved that the injection of liquor ammonia into the veins of an animal thoroughly under the influence of snake-poison is quite useless, if not hurtful. Even were it a complete antidote, practically the boon would have little value. So deadly is the cobra-poison that any remedy to save life would have to be applied the moment the unfortunate creature was bitten; but, while I think it proved that in severe cases this mode of treatment is quite useless, yet in slight cases, where only a very small quantity of the poison has been inserted, the injection of liquor ammonia into the veins may have some specific value as a remedy, but it would require a considerable number of experiments to determine this point. Had I succeeded sooner in finding poisonous snakes, I should have carried out more experiments to solve this and some other doubts.

18. At page 12 Professor Halford refers to objections raised to his plan of treatment on the supposition that Australian snakes are less venomous than Indian, and he quotes two cases of snake charmers, which proved fatal in less than an hour, and a third in less than half an hour; and on the next page he says: "In one instance one of my tiger-snakes killed a dog in seven minutes;" further adding: "I feel certain from my own actual experiments that equal amounts of poison from either American, Indian, or Australian snakes, are equally pernicious." But in this pamphlet he does not record a single one of his experiments on animals, nor of the effects of his ammonia treatment on an animal bitten in his presence by a venomous snake. This is a great desideratum. Had he supplied it, people at a distance could easily have formed a judgment as to the amount of virulence in the poison of Australian snakes. As it is, this cannot be done with certainty by any reader of this pamphlet; but if the bites prove fatal to human beings in half an hour, or even in one hour, as stated, and to a dog, in seven minutes, little doubt is left as to the power of the poison, and it would be most interesting to know if Professor Halford succeeded in saving the life of men or animals similarly bitten, as it would be entirely contrary to experience in India.

19. I do not suppose it is the wish of Government that I should offer any remarks on the hypothetical views entertained by Professor Halford, as to the changes produced in the blood by the introduction into it of the venom of snakes. They do not seem to me of much importance, and I have not a sufficiently powerful microscope at my disposal to enable me either to support or oppose them.

20. From the perusal of this pamphlet I see that the Professor complains of unfair criticism in the *Lancet*: what is there written is unknown to me. I do not take in the *Lancet*, nor have I seen its remarks on this subject, and none of my home journals refer to him.

21. The observations which I have ventured to make are such as have suggested themselves to me on a careful perusal of the Professor's pamphlet, and are, I trust, justly and candidly expressed.

No. 5344, dated 22nd November 1871.

From—H. B. HARRINGTON, Esq., M. A., Offg. Secy. to the Chief Commissioner of Oudh,
 To—The Secretary to the Government of India, HOME DEPT.

With reference to your letter No. 3155, dated the 27th June last, I am directed to forward the accompanying abstract of correspondence on the subject of Professor Halford's pamphlet on the treatment of snake-bites, and to say that the Officiating Chief Commissioner trusts that, by the judicious measures suggested by Dr. Archer, Deputy Inspector General of Hospitals, Indian Medical Service, the experiment may be fairly tested in this snake-infested province.

2. A copy of Dr. Archer's instructions to the Medical Officers in Oudh is also submitted.

Circular No. 40, dated 15th November 1871.

The Chief Commissioner having sanctioned the experimental employment in Oudh of Professor Halford's method of treating snake-bites, the Deputy Inspector General requests that Civil Medical Officers in the province will indent on the Medical Store-keeper, Allahabad, through this office, for hypodermic syringes to be used according to the instructions contained in page 10 of Professor Halford's pamphlet, a copy of which has been sent to each civil station.

These instructions are not intended to supersede the ordinary remedies applied in recent cases, such as excision, &c., but to be used when the patient is exhausted, or in the comatose state.

C. ARCHER, M. D.,
Depty. Inspr. Genl. of Hospitals,
Indian Medical Service, Lucknow Circle.

No. 1889-97, dated 20th May 1872.

From—J. MUTIE, Esq., Offg. Asst. Secy. to the Chief Commr., Central Provinces,
 To—The Secretary to the Government of India, HOME DEPARTMENT.

I am directed to reply to your letter No. 3156 of 27th June 1871, forwarding copies of a pamphlet by Professor Halford, of the Melbourne University, on the treatment of snake-bite, for distribution among the Medical Officers in these provinces, and requesting that any valuable opinions received from them might be forwarded to Government.

2. The treatment for the bite of the more poisonous snakes by injection of ammonia has never been tried by any of the Medical Officers in these provinces. In the cases of persons bitten by the less venomous kinds, such as the Chittee and Dhummy or Bungari snakes, Assistant Surgeon Harrison of Sambalpur has found *Eau de Luce* and *Liquor Ammonia* to have a decided effect when applied to the wound by incisions, and at the same time given internally.

3. Dr. Bruke, Inspector General of Dispensaries, states that, when danger is immediate and urgent, he would not hesitate to advise recourse to Professor Halford's treatment in preference to all others with which he is acquainted. He thinks lives might be saved thereby, and that no harm could be done by the treatment.

4. Dr. Townsend, the Sanitary Commissioner, states as follows:—

The efficacy of this treatment is not, I believe, generally allowed, even in Australia, and Dr. Fayrer, in the course of a long series of experiments on snake-poisons, has not found it effectual when tried on lower animals. The probable explanation of the difference in the action of the remedy here and in Australia is that the venom of the Australian snakes is not so deadly as that of the Indian varieties.

Dr. Fayrer has, I believe, had no opportunity of testing Professor Halford's treatment on a human subject, and it might be advisable to do so, should a favorable opportunity occur; but as the operation of injecting fluid into the veins is attended with considerable danger, it should not be attempted excepting by properly qualified persons.

There is not, I believe, any officer in these provinces who has given special attention to the subject of snake-poisons.

5. And Dr. Rice, Civil Surgeon of Jabalpur, reports as follows:—

In the face of Dr. Fayrer's experiments on the lower animals, in view of elucidating this very point, I do not think I would be justified in treating a man, so circumstanced, with the injection of ammonia *only*, and unless it is the *only* treatment pursued, the results will be of very impaired value; combined with any other, the most I should be able to say is, that it did not succeed in saving life; if the patient happened to recover, I could not say he recovered because of the use of ammonia when another line of treatment was at the same time pursued.

There is no other conclusion open to me, without throwing doubt on Dr. Halford's statements, than that the snakes of the southern continent are not nearly so venomous, nor their poisonous secretion nearly so active in its fatal effects as those of the snakes of this country.

I believe it is received amongst naturalists as a general aphorism, that the nearer we approach the tropics the more venomous is the poison of snakes; perhaps this will account for the difference between the results of the experiments before referred to.

6. There is nothing further that the Officiating Chief Commissioner considers worthy of notice in the reports received.

No. 1361-237, dated 7th August 1872.

From—C. B. COOKE, Esq., Offg. Asst. Secy. to the Chief Commissioner, British Burma,
 To—The Officiating Secretary to the Government of India, HOME DEPARTMENT.

I am directed to acknowledge the receipt of your letter No. 3157, dated 27th June 1871, forwarding copies of a pamphlet by Professor Halford on the treatment of snake-bite, and requesting that any valuable opinions received on the subject may be submitted for the information of the Government of India.

2. In reply, I am to say that the pamphlets in question were circulated through Commissioners of Divisions to Civil Surgeons and District Officers, and all the reports which have been received up to the present time are to the effect that they have not yet had any opportunity of testing the efficacy of the treatment proposed by Dr. Halford.

No. 1342-7G, dated the 17th June 1872.

From—J. PUCKLE, Esq., Offg. Secy. to the Chief Commr. of Mysore and Coorg,
To—The Secretary to the Government of India, HOME DEPARTMENT.

With reference to your letter No. 3159, dated the 27th June 1871, forwarding copies of a pamphlet on the treatment of snake-bites, and to your subsequent reminder of the 11th April 1872, I am directed by the Chief Commissioner to forward, for the information of His

Excellency the Viceroy and Governor General in Council, the accompanying copy of a letter* from the Deputy Inspector General, Indian Medical Department, reporting the result of the enquiries instituted by him on the subject, from which it will be seen that none of the Medical Officers in Mysore and Coorg seem to have had any practical experience in the treatment of snake-bite by the method advocated by Dr. Halford.

2. The Revd. Mr. Desaint, a Roman Catholic Clergyman at Sethulli in the Hassan District, but now on leave in Europe, forwarded the results of his experiments with ammonia and other remedies in the case of snake-bites, to the Chief Commissioner on the 17th January 1868. He claims to have been successful in several instances, and his paper was published as a supplement in the *Mysore Gazette*, a copy of which I am instructed to forward, with an expression of Colonel Meade's regret that he is unable to obtain any more satisfactory opinions on the subject.

No. 183, dated 2nd May 1872.

From—J. L. RANKING, Esq., Depy. Insp. Genl., Indian Medical Dept., Mysore Divn. and Ceded Dist.
To—The Secretary to the Chief Commissioner of Mysore.

I have the honor, with reference to your numbers as per margin, to report that none of the Medical Officers of the Mysore Commission have any practical experience in the treatment of snake-bite by the method advocated by Dr. Halford.

2. I may state that Dr. Fayrer of the Bengal, and Dr. Shortt of the Madras, Medical Services, instituted a series of most careful experiments as to the efficacy of liquor ammonia when injected in a vein in bites from venomous Indian snakes.

3. I do not think it necessary to lay before the Chief Commissioner the evidence adduced by those officers in support of the inefficacy of the treatment as applies to the bites of Indian snakes, as those officers have doubtless contributed to the enquiry set on foot by the Government of India. But I may add that the evidence is generally accepted by the profession as conclusive of the inefficacy of the treatment.

Dated the 17th January 1868.

From—The Rev. C. DESAINT, Missionary Apostolic, Mysore,
To—L. B. BOWRING, Esq., C. S. I., Commissioner of Mysore.

For more than ten years I have been engaged in treating snake-bites, and in the different countries which I have traversed, I have made particular researches into the remedies employed by the natives, and I have often paid dearly for a knowledge of certain plants, or pretended secrets, said to be infallible; but I was far from being satisfied with anything I discovered. Many persons boasted greatly of particular infallible pills, as they called them, and cited various cases of cure, but they could not tell me when and how I could procure these pills.

Every year I have many cases of snake-bites, and in a single year have known twelve cases, though this year I have had only four. I have employed almost all the remedies recommended by Europeans and natives.

I am no medical man, my intention being simply to explain to you as clearly as possible the result of my researches, and the treatment which has hitherto appeared to me to answer best against snake-bites. But first let me explain as briefly as possible the various remedies upheld and employed by European and native doctors.

When a person has been bitten, in order to prevent the absorption of the venom, all are unanimous in recommending a strong ligature above the bite. This is a good but an insufficient means, for the poison can only be arrested for a while, and if it is not promptly annihilated, it will not be slow in making its ravages.

In order to destroy the venom in the wound, cauterization, either by a red hot iron, or nitrate of silver, or antimony, is proposed; but these violent remedies only affect the poison in the wound, and are useless against that which is already absorbed into the circulation.

To eliminate the latter, stimulants are generally given, and in certain cases real benefit has been derived from the use of Ammoniac, Madeira wine, Sherry, &c. I believe such remedies to be good when the quantity of poison is inconsiderable, but I am persuaded that ammoniac, even if administered in powerful and repeated doses, is insufficient in cases where a great quantity

of poison has been injected. Never having had occasion to employ Madeira, I cannot say any thing about it, but nevertheless I cannot imagine it to be a better specific than ammoniac.

Among the plants which natives use, the greater part have no effect, but some appear to me deserving of attention, and of being used. Those which seem to me to have real efficacy against snake-bites are ordinarily the *aristoloches* and *asclepiades*. Among the *aristoloches* of India the *aristolochia bracteata*, known in Canarese by the name *adumuffada gida* seems to hold the first rank. A European planter near Munjerabad assures me that he himself saw this year a person of his plantation, bitten and insensible, thoroughly cured by the juice of this plant, which they made him take interiorly.

Near Bangalore and in Coimbatore they esteem greatly the root of the *asclepias volubilis* known in Tamil by the name of *palai*. It is considered sufficient to make the person who has been bitten eat the root. Many cases of cure by the use of this medicine have been mentioned to me, but it is also admitted that it does not *always* succeed.

Others use the *asclepias acidasindi kodi* in Tamil). They give the root, powdered, in doses of 15 to 20 grains, and repeat the dose three times every 10 or 20 minutes.

The root of the *ophioxylon serpentinum*, found in the bazaars under the name of *sutira-nabi*, is much used against snake-bites, the powder of it being applied to the wound, and a decoction of it to the interior.

The Konkanees have great confidence in the root of a plant which they call *nari visha*, of which they grind on a stone the root with a little liquor, and apply it to the wound and also administer it internally; and if the patient becomes insensible, a pot containing fire is placed on his head.

I do not possess facts to enable me to pronounce an opinion on the efficacy of these plants, and therefore content myself with mentioning them.

They esteem also a porous stone called "serpent stone," which is reputed to absorb all the poison on being applied to the wound. I am acquainted with the composition of this stone, but I do not think it worth mentioning.

As regards the remedies employed by jugglers and snake-charmers, I have always assumed that they were frauds skilfully played to deceive the credulous, and to sell dearly unimportant remedies.

Orfila, in his *General Toxicology*, vol. II, p. 536, appears to place arsenic at the head of the list of specifics against snake-bites, and says that the arsenic of potassium and arsenic acid have been employed with the greatest success against the bites of venomous snakes, citing in support of this fact many observations, which may be read in volume 2 of the *Medical Chirurgical Transactions of London*.

Russell, in his famous work on Indian serpents (*An Account of Indian Serpents collected on the Coast of Coromandel*, by Patrick Russell: London, 1796, 2 vols.) reports the experiments that he made with arsenic acid, and refers to the pills of Tanjore as an Indian preparation much in vogue for healing the bites of venomous animals. He does not mention their composition, but he says that the white oxide of arsenic (arsenic acid) is the basis of it, and that a pill of six grains contains rather less than three-fourths of a grain of it.

Are not these pills the same as those which have been recommended to me so highly, and of which so many cases of cures have been reported, which I have so long sought for, and of which I am now about to give you the composition? I am disposed to think so. However the following is the composition of these celebrated pills:—

Tamil Names.	Latin Names.	English Names.
Nari visham	(Erythronium Indicum?)	
Sutira nabhi	Ophioxylon serpentinum	Ophioxylon of serpents.
Aridalum	Arsenicum flavum	Yellow orpiment.*
Manosilo	Arsenicum rubrum	Arsenic realgar.
Kipashana	Arsenicum album	White oxide of arsenic.
Panjam palai	Aristolochia bracteata	Floral leaved birthwort.
Marukarankai	Gardenia dumetorum	Emetic nut.

An equal portion (in weight) is taken of each of these ingredients, which are mixed and pounded for three hours in betel juice (betel leaves), a little *ganji* is then added, and pills are made of the size of a grain of *dolichos catiang*. One or two of these pills are broken over the wound, and one or two are taken in the juice of betel leaves. At least three may be given for the interior.

I could mention numerous cases of cure worked by these pills. Our Venerable Pro Vicar, M. Jarrige, who has passed more than 40 years in India, and who has often tried them, can testify to this. As for myself, permit me to mention the last serious case which I have had to treat.

At the end of July, a woman of Mandra, a village near Suthulli, was returning home towards evening, bearing a bundle of herbs on her head. In passing along the little road which leads to the village, and which is bordered by an aloe hedge, she put her foot on an enormous cobra which twined itself round her leg and bit her deeply. The frightened woman was obliged to seize and pull away the snake by her hand to get free from it. She was brought to me about three quarters of an hour after the accident. A ligature had been attached above the wound. The leg was much swollen, but the woman did not suffer violent pain, though there was sensible numbness and weakness in all the body. She seemed stupefied and dull, her responses

* Native sulphurs of arsenic to be used.

being slow, but as I did not know her, I supposed this to be her ordinary character. I made her take 20 drops of ammoniac in about an ounce of water, and cauterized the wound with ammoniac, as I shall mention hereafter.

Perceiving nothing extraordinary, I left the woman in my verandah and went to supper. Scarcely had I sat down, when I was told that the woman had experienced shiverings and tremblings. She then lost all consciousness, though I was not told of this. I finished my repast and returned to visit her. I found her insensible, the head bent on the stomach, the teeth firmly closed and the extremities of the limbs cold. I then thought that all was over, and took out my watch to see exactly in what time she would expire. Being desirous, however, not to have any ground to reproach myself with, I got her jaw opened by two men, and made her swallow a pill with a little betel juice. Ten minutes afterwards, not observing any change for the better, I broke a second pill in betel juice, and tried to make her swallow it. But the pill thus broken seemed to stick in her mouth, so that I took at once a third pill, which I got slipped down her throat with a little juice of betel leaves. In about two minutes the woman sighed, and after a few moments she seemed to open her eyes. I then ordered two men to raise her up and to make her walk. She was thus forced to move about ten paces. She then opened her eyes widely and looked round her with a vacant air. I told the men to let her move cautiously. She supported herself with difficulty, and at my request returned to me slowly and staggering. She then asked what had happened to her, and seemed to recover her senses perfectly. During the night she vomitted twice, and the next morning returned home perfectly well.

I cannot guarantee that these pills will always succeed infallibly, but I think I can state with assurance that they are the best and most certain remedy hitherto known; for we perceive in their ingredients three kinds of arsenic, a substance recognized by the most learned medical men, who have written regarding the venom of snakes, to be most efficacious, as well as those plants which are most stimulant and most recommended against snake-bites.

But to ensure the efficacy of these pills, we must, at starting, be certain of the purity of the ingredients, and be very careful about their manipulation. The ingredients must be mixed and boiled together for at least three hours, and the pills must be administered in the juice of betel-nut, and never in water, it being asserted that water destroys their properties.

Moreover I believe that one could not draw any conclusion from experiments made with these pills on fowls or dogs which had been bitten, and which nevertheless died; for it is evident that, *ceteris paribus*, a much greater quantity of poison is required to kill a man than a fowl. A remedy, therefore, which may give a man sufficient strength to overcome the poison, may fail completely with weaker animals. Again, it appears that three pills are ordinarily required to destroy the poison of a snake, whereas this quantity administered to a fowl would kill it.

Permit me now to inform you of the course I take in treating snake-bites.

All serpents may be divided into two great classes:—1st, those whose bite causes death speedily, and 2nd, those whose bite is followed by gangrene, and only causes death some months after the accident, generally, that is, in four or six months. Among snakes of the first class, the *cobra di capella* and the *viper elegans* or painted snake, known in Canarese by the name of *bale katuka*, are the most formidable. Their bite rarely causes much pain, but is followed by numbness of the bitten part, weakness and faintness, while the jaws contract and are set, the tongue becomes thick, the mouth becomes covered with foam, and death often ensues in two or three hours.

The snakes of the second class are generally called in Canarese *mandalada havu*, in consequence of the zones or circles on their backs. Their bite causes extreme and burning pain and shiverings and tremblings of the entire body, while the bitten part swells. These appearances diminish in 24 hours, the swelling disappears, but the gangrene commences and makes frightful ravages. The bitten person sees his flesh become putrid, until the gangrene gaining the vital parts causes death.

TREATMENT OF SNAKE-BITES.

The treatment of snake-bites is both interior and exterior.

1. As soon as a person is bitten, a ligature lightly tied should be fastened above the wound. It should not be of cord nor of very small fastenings which might irritate the skin. It should also not be continued too long, lest it increase the livid tint and favor the development of gangrene. Indians generally make their ligature a great deal too tight, but if the swelling is considerable, and the pains severe, &c., I dispense with the ligature.

2. I lose no time in at once treating the wound. I take a little glass tube, made to cut at the end and filled with ammoniac, and force it down as deep as possible into the wound. I remove the edges, and scrape gently the interior of the wound, pressing lightly and letting it bleed as much as possible. During this operation, the ammoniac contained in the tube descends by degrees, and penetrates to the bottom of the wound. I scrape the blood which flows with ammoniac, and I have often seen, during this operation, the poison contained in the wound adhere to the extremity of the tube in an oily and viscous form. I wipe the tube impregnated with blood, steep it again in ammoniac, and recommence the operation two or three times. Having thus cleansed and thoroughly cauterized the wound with ammoniac, I take a small dressing of pure ammoniac and apply it to the wound. The ammoniac acts as a blister, and bubbles rise up here and there, which greatly aid, I believe, in destroying the effects of the

poison. Formerly I used to cauterize with butter of antimony, but I have found out that ammoniac thus applied is far preferable.

3. As for interior treatment, as soon as a patient is brought to me, I make him take 20 drops of ammoniac in about an ounce of water, and attend to the wound as I have described. The wound having been cauterized and dressed, if the effects of the poison diminish, I give another dose of ammoniac, 20 drops internally; but if the effects have increased, I give no more ammoniac, but I administer three pills in the juice of betel leaves, one every five minutes. After the second or third pill the symptoms ordinarily greatly diminish, and the patient is out of danger.

Such is my usual method of treating the bites of snakes of the first class, but I am assured that the pills alone properly administered succeed perfectly. As I have said above, one or two are broken over the wound, and one or two or even three are taken interiorly in betel juice.

In respect to snakes the bite of which brings on gangrene, and only causes death some time after the accident, I treat the wound in exactly the same manner that I have above described. I then make a mixture of one part of ammoniac to five or six parts of water, and steeping dressings in this ammoniacal water, I apply them to the wound, recommending the patient to keep them continually moistened with the ammoniacal water during 24 hours. I administer also interiorly 20 drops of ammoniac in an ounce of water, repeating the dose two or three times, should this be necessary. I do not give pills for this class of snakes.

For old and gangrened wounds I follow the same course, and under the influence of the dressings of ammoniacal water, one soon sees the gangrene cease and the wound become cicatrized.

By the help of this simple and easy remedy, I have healed old and very severe wounds, and I may affirm that this simple treatment succeeds perfectly in all cases of bites by these kinds of snakes. But it is insufficient for bites by cobras and snakes of the first class.

Such is the treatment, Sir, that I wish to make known to you. May it succeed with others as it has hitherto succeeded with me, and should I have the consolation of contributing to save the lives of some persons, I shall consider myself well rewarded for my trouble and labour.

Proceedings of the Council of the Lieutenant-Governor of Bengal for the purpose of making Laws and Regulations.

Saturday, the 22nd February 1873.

Present :

THE HON'BLE G. C. PAUL, *Acting Advocate-General, Presiding.*
 THE HON'BLE F. L. BEAUFORT.
 THE HON'BLE V. H. SCHALCH.
 THE HON'BLE C. E. BERNARD.
 THE HON'BLE MOULVIE ABDOL LUTEEF, KHAN BAHADOOR.
 THE HON'BLE B. D. COLVIN.
 THE HON'BLE F. F. WYMAN.
 THE HON'BLE RAJAH JOTEENDRO MOHUN TAGORE, BAHADOOR.
 THE HON'BLE BABU DIGUMBER MITTER.

EMIGRATION TO THE LABOR DISTRICTS.

THE HON'BLE MR. BEAUFORT said, he begged leave to postpone the motion, which stood in the list of business, that the Bill to amend the law relating to the emigration of laborers to the districts of Assam, Cachar, and Sylhet, and to regulate contract-labor and service, be read in Council. He adopted this course at the suggestion of two hon'ble members, who thought that sufficient time had not been given for the consideration of the Bill. At the same time he would say that he had no idea of pressing on the Bill too rapidly when he proposed to proceed with it that day, for the Bill was in the hands of the members on Saturday last, and it was, as already explained, little more than a re-arrangement of the law which now existed. He believed that the practice of the Council, on the motion to read a Bill, was to confine the debate to the principles of it, and to leave the details for the consideration of the Select Committee; and as the Bill did not propose to interfere with the principles of the present law, it appeared to him unnecessary to invite any lengthened discussion at the present stage. But in deference to the wishes of the two hon'ble members, he had no hesitation in asking leave to postpone the motion, of which he had given notice, for a fortnight.

He would take this opportunity of supplementing what he said at the last meeting in moving for leave to introduce the Bill. He had omitted to refer to one particular section of considerable importance. He had intended to mention the subject on the last occasion, but had forgotten to do so. The section to which he alluded was section 105 of the present Act II of 1870, which appeared in the Bill as section 127. The provision in the present law was, that when a laborer had suffered imprisonment for six months for desertion, that imprisonment should have the effect of cancelling the contract. In this Bill Mr. Beaufort had inserted certain words (which he had taken from a Bill lately laid before the Imperial Council regarding emigration) which very much altered that provision, as it declared that the imprisonment should have that effect if the employer so desired in writing, and not that such imprisonment should of itself operate as a cancellation of the contract. As the words of the Bill stood the contract would not be declared cancelled by reason of the imprisonment unless the employer requested that such order be passed. That was a matter of considerable importance, and was very much discussed in former years in this Council. It attracted the attention of the Government of India and the Secretary of State, and a Bill passed through this Council was rejected, because it did not contain a section providing that a certain term of imprisonment as a punishment for desertion should have the effect of cancelling a contract. He would shortly state the arguments for and against the provision. First as against the provision, it was urged that it was very unjust to place it in the power of one of two contracting parties to determine the contract at his own

pleasure to the wrong of the other party; very unjust that the laborer should have it in his power by his own misconduct to free himself from his contract to the serious loss of the employer, possibly with the view of selling his labor at a higher price to another person. On the other hand it was argued that the parties to the contract were not on equal terms when the contract was made. The employer was perfectly aware of the circumstances under which the contract would be carried out, while the laborer had no knowledge, or an erroneous conception, of what was before him. At that time it was believed that the condition of the laborer was often deplorable, and it was considered just under the circumstances that he should have some means of release; and it was said that six months' imprisonment was a full penalty for his offence in breaking his contract. It was also said that the condition of the laborer must be extremely bad when he would voluntarily undergo six months' imprisonment in order to cancel the contract. But the chief argument which weighed with the superior authorities was, that the object and natural result of such a provision of law was to enlist in favour of the laborer the kindness, humanity, and self-interest of the employer. MR. BEAUFORT would not have proposed to alter that provision, after all the discussions which had taken place when the former Bills were under consideration, and the expression of opinion of the higher authorities, but for the following reasons. He had already mentioned that he had taken it from a Bill before the Imperial Council, and it appeared to him that the matter might now be considered from a different point of view. It was generally admitted, he believed, that the condition of laborers in the tea districts at present was very different from what it was at the time when the former Bills were considered. Very great improvement in that respect had taken place, and it might be said with truth of most of the proprietors and managers of tea plantations now that they treated their laborers with great kindness and consideration, and that the life of the laborer now was not the life of misery which it was once described to be. There was another consideration which had also weighed with him. A very large proportion of the laborers now were men who had re-contracted on the spot after the expiration of their original contracts; and of course the considerations which applied to laborers who had entered into their first contract in ignorance would have no proper application to persons who made new contracts after the personal experience of several years. MR. BEAUFORT could not say that he was wholly in favour of the alteration proposed, but its insertion in the Bill would lead to a full discussion of the question by the Select Committee. It was a matter on which the employers had always expressed a very strong opinion, and he trusted that the Select Committee to whom the Bill might be referred, would carefully consider whether the present provision of the law might not be reasonably and equitably open to some modification.

THE HON'BLE MR. COLVIN said, as the hon'ble member in charge of the Bill had assented, in deference to the hon'ble member who usually sat on Mr. Colvin's right (Mr. Robinson) and himself, to postpone for a short period the motion for the reading of this Bill, perhaps he might offer a word of explanation as to his reasons for having made that request. His Honor the President was pleased on the last occasion to direct that the Bill should be published in the Gazette, in order that the changes proposed to be made in the law might be thoroughly considered before the Council proceeded further with the Bill. Although the hon'ble member had explained that the provisions of this Bill did not involve any radical change of principle from previous enactments passed, but was rather a re-arrangement of the existing law with the modifications which he had explained, still it appeared to MR. COLVIN that those modifications were in themselves of no small importance, and might fairly be opened to discussion of such a nature as was usual at this stage. And as the Bill had to a certain extent re-opened the whole question, it was possible that suggestions for other modifications might be made. There was scarcely time for the various public bodies and others interested in the matter here, such as owners and agents of tea estates, owners of tea stock, and coolie contractors, and still less for tea-planters and proprietors at a distance, to submit any expression of their views. Speaking for himself, he might say that he had

not had time to go into the subject as thoroughly as he could wish, and he had therefore ventured to ask for some further time for the general consideration of the Bill. He was indebted to the hon'ble member for his acquiescence with that request.

The motion that the Bill be read in Council was then postponed for a fortnight.

EMBANKMENTS AND WATER-COURSES.

THE HON'BLE MR. SCHALCH moved that the report of the Select Committee appointed to consider certain amendments in the Bill to amend the law relating to embankments and water-courses, be further considered in order to the settlement of the clauses of the Bill. At the last meeting of the Council, the amendments proposed by the hon'ble member opposite (Baboo Degumber Mitter) were discussed and disposed of, and MR. SCHALCH now proposed to take up the amendments of which he had given notice.

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, the first amendment which he proposed, referred to Section 18. By that section provision was made for appending to the proclamation to be issued by the Collector a list of the estates, villages, "and municipalities" mentioned in the notice. The object was to ascertain what municipalities of the first and second classes should be bound as municipalities to contribute towards the expense of maintaining embankments. The creation of first and second class municipalities had now fallen to the ground, and it was therefore proposed that the word "municipalities" should be omitted, landholders within those municipalities bearing their proper share of the expense of maintaining embankments in the same manner as they would bear their share as proprietors of ordinary estates. He therefore moved the omission from line 20 of the words "and municipalities," and the insertion of the word "and" between the words "villages" and "estates."

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, before going to the next amendment on the list, he thought it would be well to get rid of the other sections which also referred to municipalities. The first of these was Section 44. The proposition was to omit the portion of that section commencing at the 14th line and ending at the word "executed" in the 18th line. The words proposed to be omitted were—

"Provided that the Collector may, if he thinks fit, order that a portion of the total sum payable shall be paid by any municipality of the first or second class which is, in his opinion, benefited or protected by the works or repairs executed"

The motion was agreed to.

THE HON'BLE MR. SCHALCH next moved the omission of the second paragraph of Section 46, which referred entirely and solely to municipalities, and was as follows:—

"Whenever it has been ordered by the Collector that a municipality is liable for a portion of the said total sum, the notice shall contain a statement to that effect, and shall be served on the Chairman of the municipality"

The motion was agreed to.

THE HON'BLE MR. SCHALCH moved to omit Section 51, which also referred only to municipalities, and was as follows:—

"The Collector shall likewise determine the amount payable in respect of any municipality rateably, in proportion to the benefit derived by it from the work or repair executed, and the remaining sum shall be apportioned as directed in the two last preceding sections. Provided that no rate-payer in such municipality shall be required to pay any portion of such remaining sum in respect of any tenure which is situated within the limits of such municipality"

The motion was agreed to.

In Section 53 THE HON'BLE MR. SCHALCH moved the following amendments also relating to municipalities:—

"To omit the words 'or municipality' in line 2, and to insert the word 'or' between estate' and 'tenure.'

“To omit the words in lines 9 to 13 ‘And provided also in the case of a municipality that the instalment payable in any one year shall not exceed ten rupees per centum of the total income of such municipality during the year last preceding.’”

The motions were severally agreed to.

THE HON'BLE MR. SCHALCH moved the omission of the second paragraph of Section 57, also referring entirely to municipalities, which was as follows:—

“It shall be lawful for the Commissioners of any municipality to pay to the Collector on the dates fixed by the order passed under Section 54, the sum which is declared in such order to be payable in respect of such municipality; and, for the purpose of realizing the amount so disbursed, to increase the rate of any tax leviable therein.”

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, no provision had been made in the Bill for cases where there might be a doubtful jurisdiction as to land situated within two districts. To meet such cases we had adopted the principle laid down in regard to jurisdiction in civil cases, and suggested that where land was situated within the limits of two different districts, the Collector of either district might have jurisdiction on reporting the matter to the Commissioner of the division and receiving his sanction, when it would be competent to the Commissioner to give jurisdiction to either Collector. And where the land lay in two different divisions, it was proposed to allow the Commissioner of either division, with the concurrence of the other, to give authority to proceed in the matter. Nothing, MR. SCHALCH thought, need be mentioned on this subject further than that it was necessary to have some provision for cases that might arise. He would move to introduce the following clause after Section 22:—

“22A. If the lands, which are likely to be affected by any such proposed work, are situated within the limits of different districts, the Engineer may report to the Collector of any district within which any portion of such lands is situated, and such Collector may proceed in respect of all the lands likely to be affected by such work; but in such case he shall apply to the Commissioner of the division for authority to proceed in such matter; and the Commissioner of the division, if all the lands are situated within his division, may give authority to any Collector within whose district any portion of such lands is situated to proceed in the same.

“If the districts, within which the lands likely to be affected by any such work are situated, are subject to the Commissioners of different divisions, the Collector, to whom the Engineer has submitted his report, shall apply to the Commissioner of the division within which his district is situated, and such Commissioner may, with the concurrence of the Commissioner to whom the other district is subject, give authority to proceed in such matter.”

The motion was agreed to.

THE HON'BLE MR. SCHALCH then moved the insertion of the following section after Section 27:—

“27A. The provisions of Section 22A shall be applicable to proceedings taken under this Part.”

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, the next section in which he proposed an amendment, was section 32 in Part V of the Bill, relating to the acquisition of land. Some difficulty was experienced in Committee as to how to render the provisions of the Land Acquisition Act of 1870 applicable to cases in which land was taken up under this Bill. The section as it now stood specified the sections of the Land Acquisition Act which were declared applicable. But since the Bill had been in Committee he had had the benefit of consulting with his hon'ble friend opposite (Mr. Beaufort) and others, and it was now considered that the simplest and most perfect way of extending the provisions of that Act to cases under this Bill was to omit all the words from line 5 to the end of the section, “and all the provisions contained in Sections 10 to 15, 18 to 34, 36, 37, 38, 42, 51, 55, 58 (as amended by Act IX of 1871), and 59 of the Land Acquisition Act, 1870, shall be applicable to such proceedings,” and to substitute for them the following words:—

“In accordance with the provisions of the Land Acquisition Act of 1870, or any other law for the time being in force for the acquisition of land for public purposes.”

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, Section 35 referred to the case where the taking of land for the purposes of the Act affected rights in other lands or certain other rights. Here also some difficulty was experienced. But after consideration it was thought fit to adopt the following section, which he now moved to substitute for Section 35:—

“When any such claim is made, proceedings shall be taken in view to determine the amount of compensation, if any, which should be made, and the person to whom the same should be payable, in accordance with the provisions of the Land Acquisition Act, 1870, or any other law for the time being in force for the acquisition of land for public purposes.”

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, the next amendment was to omit Sections 37, 38, and 39 of the Bill. Those sections corresponded with Sections 35, 39, and 40 of the Land Acquisition Act. As by the adoption of the previous amendments all the provisions of that Act had been rendered applicable to proceedings under this Bill, it was no longer necessary to retain the sections which he now moved to omit. He therefore moved that they be omitted.

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, he now came to the amendment to insert a new section after Section 41. Section 41 referred to the duty of the Government to maintain certain embankments entered in the schedule annexed to the Bill. In addition to the embankments therein specified, there was one other case in which the Government considered themselves pledged to contribute towards the maintenance of embankments in the two purganas of Futtchsing and Rokanpore. He was aware of the circumstance when the schedule was drafted; but under the impression that this Bill did not bear on those embankments, no provision was made for it. But he had since been led to believe that doubts might be thrown on the intention of the Government in omitting any mention to such contributions, and it might be supposed that they were desirous of avoiding what they considered to be their obligations. Consequently, to remove all doubts, he proposed to insert the section of which he had given notice. He would take up the time of the Council for a few moments to give a history of the contributions made on account of embankments in these purganas. So far back as 1790, or even a few years before, mention was made in the records of the contribution of Sicca Rupees 1,375, which was then made to the zemindars towards keeping up embankments in the Rokanpore purgana, and of Sicca Rupees 1,600 for the same purpose in Futtchsing. These contributions were paid for a long time. He found them the subject of enquiry in 1834, when in the report of the local authorities it was stated that those embankments were not repaired for years.

The local authorities were of opinion, therefore, considering that the condition on which the contribution was made was not fulfilled, that the contribution should cease to be paid. The Board, however, were of opinion that the contribution should be continued, the responsibility of the maintenance of embankments resting as hitherto upon the zemindars. That proposition was accepted by the Government, and from that time a sum in Company's Rupees equivalent to the contribution then made, had been paid to the zemindars. Those embankments had not been hitherto taken up as public embankments, and it was probable that they were not of such importance as to render it necessary that they should be so taken up. It was therefore proposed that so long as they remained not public embankments, the contribution should be made. If hereafter it should be found necessary to take them up as public embankments, then it was proposed that from that time the contribution should be formed into a fund to be appropriated to the repair and maintenance of the embankments, and any balance at the end of one year remaining unexpended should be carried towards the fund of the next year. If it was found that the contributions were not sufficient, then, after deducting from the expense the amount credited to the fund, the balance would be recovered from the zemindars under the provisions of this Bill. It was then further declared that if it should be found that the embankments were not necessary, then the contribution would cease. But so long as any embankment was kept up, the contribution

would be paid as it had hitherto been done. He thought he need say nothing further, except that he had made an alteration in the latter part of the proposed section, which, as at present worded, might be held to constitute the Collector the final authority in determining the necessity or otherwise of the embankments. Another alteration he would propose was the substitution at the end of the new section of "any embankment" for "the embankments." The intention was that the contribution should be revived, if it was found that the maintenance of any one embankment had again become necessary. MR. SCHALCH then moved the introduction of the following section after Section 41:—

"41A. In accordance with the custom heretofore in force in respect of the purganas entered in schedule F annexed to this Act, the Government shall continue to contribute annually the sum noted therein for each purgana respectively towards the maintenance of the embankments thereof.

"If the embankments maintained in any such purgana shall at any time be declared to be public embankments under the provisions of Section 4, the Collector shall, from the date of such declaration, keep a separate account for such purgana, in which the aforesaid sum shall be credited at the commencement of each financial year. The unexpended balance at the close of each year shall be carried on to the credit of the account in the next succeeding year and shall be available for the cost of repairing or erecting all the embankments which it may be deemed necessary to maintain in such purgana.

"If at any time after the passing of this Act, on an enquiry made by the Collector, as far as possible in accordance with the provisions of Part III, it shall be found that it is unnecessary for the public interest to retain any embankment in either of the said purganas, the Lieutenant-Governor may direct that such contribution shall cease in respect of such purgana. Provided that such contribution shall again be made in accordance with the provisions hereinbefore contained, if it shall appear to the Lieutenant-Governor, on the report of an enquiry similarly conducted, that the maintenance of any embankment in such purgana has again become necessary for the public interest."

THE HON'BLE MR. SCHALCH said, Section 49 provided for the apportionment of expenses. He moved the addition to the section of the following clause, to provide that in the case of these two purganas the apportionment should be made after deducting the amount of contribution:—

"Provided also that the sum standing to the credit of a purgana in Schedule F in the account kept by the Collector at the time when the total amount payable is fixed under the provisions of Section 44, shall be deducted from the total amount payable in respect of such portion of any embankment as is situated in such purgana; and that the zemindars of the estates situated therein shall be charged only with the balance of the amount (if any) which may remain payable."

The motion was agreed to.

THE HON'BLE MR. BEAUFORT said, Section 66 provided that no order of a Collector and no payment made by him in proceedings taken under the provisions of the Bill should be admissible in a Civil Court as evidence that the person named therein as the zemindar or proprietor of any estate or tenure was the zemindar or proprietor of such estate or tenure. It appeared to him unnecessary to introduce into the law a provision of that nature. It might be that the evidence afforded by the finding of the Collector would, under the circumstances, be of little value; but, whatever the value of the evidence might be, it should be allowed to stand for what it was worth. Certainly no Court could reasonably rely on that evidence alone; but to exclude it altogether from consideration was to throw a slur on the proceedings of the Collector and to say that no reliance could be placed on them, or in other words to presume that the decision of the officer to whom so much power was given by the Bill, would be inequitable and fundamentally bad. MR. BEAUFORT moved that the section be omitted, which would leave it to the parties to make what use they could of proceedings taken under the Bill.

THE HON'BLE MR. SCHALCH observed that there was no objection to the omission of the section. It was only introduced to satisfy the fears of some hon'ble members that Munsifs and other Judges of inferior grade might, unless some provision of that kind was made, admit altogether irrelevant evidence. But as the hon'ble member considered the section unnecessary, MR. SCHALCH had no objection to its omission.

The motion was agreed to.

THE HON'BLE MR. SCHALCH said, with regard to Schedule E, which referred to those embankments which the Government were bound to maintain, he would prefer to have a little further time to enable him to show exactly why the Government had accepted the obligation of maintaining those embankments and no others. He was still looking through the papers, and he should now like to postpone the further consideration of the Bill until the next meeting of the Council.

On the suggestion of the Acting Advocate-General, a verbal amendment was made in Section 40, and the further consideration of the Bill was then postponed to the next meeting.

The Council was adjourned to Saturday, the 1st March.

Saturday, the 1st March 1873.

Present:

HIS HONOR THE LIEUTENANT-GOVERNOR OF BENGAL, *Presiding.*

The Hon'ble G. C. PAUL, *Acting Advocate-General.*

The Hon'ble F. L. BEAUFORT,

The Hon'ble C. E. BERNARD,

The Hon'ble MOULVIE ABDOL LUTEEF, KHAN BAHADOOR,

The Hon'ble B. D. COLVIN,

The Hon'ble T. M. ROBINSON,

AND

The Hon'ble RAJAH JOTEENDRO MOHUN TAGORE, BAHADOOR.

MOFUSSIL MUNICIPALITIES.

THE HON'BLE MR. BEAUFORT presented the report of the Select Committee on the Bill to amend the District Municipal Improvement Act and the District Towns' Act. He said the Council would remember that the object of the first section of the original Bill was to authorize the election of Municipal Commissioners in municipalities under the District Municipal Improvement Act. The Select Committee were of opinion that wherever the principle of election—the system of self-government—was admitted, it should be so admitted as to afford a fair prospect of success, and that that would not be the case if the number of elected Commissioners were smaller than the number of Commissioners appointed by the Government. The Committee therefore recommended that not less than two-thirds of the Commissioners should be elected, if it were directed that any Commissioners at all were to be elected. The number of Commissioners under the District Municipal Improvement Act was unlimited. The minimum number was fixed at seven, exclusive of certain ex officio Commissioners; but any number of Commissioners might be appointed, and therefore without some restriction the elected Commissioners might at any time be overwhelmed. The Committee also proposed that the rate-payers who were to be allowed to vote at such elections should be those who have paid the tax on houses, buildings, and lands. Act III of 1864 also allowed the levy of a tax on carriages, horses, and elephants, but the Select Committee were of opinion that persons paying a tax of that kind merely from the accident of having carriages, horses, or elephants, were not entitled to vote at the election of Commissioners, and that the qualification for a vote should be confined to persons holding a substantial interest in the municipality, viz. those who paid the tax on houses, buildings, and lands. The Select Committee also proposed to introduce a section declaring that the term of office of a Commissioner should be limited to three years, and providing for the rotation of Commissioners. Under the proposed section, at the end of three years a Commissioner would *ipso facto* vacate his appointment; but that would not prevent his re-election or re-appointment. The rules for the rotation of Commissioners under Act III of 1864, proposed by the Select Committee, were similar to those which were provided in the other municipal law, Act VI of 1868.

The third section of the Bill as amended referred to the election of the Vice-Chairman. The Committee was of opinion that whenever Municipal Commissioners were elected under section 1, the Vice-Chairman should always be elected; and another clause had been introduced to enable them to get rid of an objectionable Vice-Chairman by the vote of two-thirds of the Commissioners. The 4th and 5th clauses were the same as in the original Bill, with the exception of the words providing that the Commissioners under Act III of 1864 might expend a portion of the fund on the establishment and maintenance of hospitals or dispensaries and in the promotion of vaccination. At the time of drafting this Bill, it was forgotten that Bengal Act VII of 1867 had already provided for the expenditure of municipal money on such objects. Sections 4 and 5 therefore were confined to the application of a portion of the municipal fund in the establishment and maintenance of schools. A proviso was added to the original Bill with the object of securing the voluntary action of the municipal bodies in the expenditure of their money on schools; but the Select Committee were of opinion that the same principle should be applied to expenditure of money on hospitals, dispensaries, and vaccination; and a new section had been added in that view, providing that no portion of the municipal fund should be expended on any of these objects without the consent of a majority of the directors of the fund. There was a clerical error in the Bill as amended. The words "this Act" had been left out. The consequence was that as the section stood it would apply to the old Acts only and not to the Bill. It was merely a clerical error, and would be corrected on the proper occasion.

The only other point in the report of the Committee to which he need refer was the introduction of the new section 7. Under the present system the municipal year, if he might use the expression, was different under different enactments. By Act III of 1864 the first day of the year was fixed for the 1st of May, and in the Act regulating the expense of police in towns—Bengal Act VI of 1867—which was in fact an amendment of Act III of 1864, the 1st day of January was fixed as the first day of the year. Under Act XXVI of 1850, the application of which was now very limited, but which was still extant, the 1st of May was declared to be the first day of the year. These different dates led to some confusion, and it might also be found convenient to alter the date of the municipal year for other reasons. For instance, the executive works to which the attention of municipal bodies was chiefly confined, were carried on immediately after the rains, and it might be convenient that the municipal year should commence at that time, in order that the estimates might correspond with the seasons. It was therefore proposed to introduce a section giving power to the Government to alter the date for the commencement of the year, and to declare on what dates the accounts and estimates should be furnished. The section as it stood in the amended Bill was, however, confined to the two Acts, III of 1864 and VI of 1868, and he would on the proper occasion propose to substitute for it another section extending the application of it to all the municipal laws.

Since the report of the Select Committee had been prepared—in fact only yesterday—a letter was received from the Municipal Commissioners of the Suburbs, proposing the enactment of provisions for the registration of births and deaths. The Committee had had no opportunity of considering that communication. That might be a very suitable and proper provision to introduce in the Suburbs of Calcutta. The registration of births and deaths was now enforced in Calcutta under Act VI of 1863; and it might be very advisable that a similar system of registration should be introduced in the suburbs and in other places. But whether the Council would sanction such rules, and whether it would think fit to introduce provisions for that purpose in this Bill or in a separate enactment, it would be for the Council to say. If it was thought expedient to introduce them into the present Bill, the best course to adopt would probably be to refer the Bill back to the Committee for the consideration of that point; and with that view he would make a formal proposal now, that the Bill should be referred back to the Committee for a report on the proposition contained in the letter from the Suburban Municipality.

HIS HONOR THE PRESIDENT said, before putting the question he wished to say for himself that he was extremely indebted to the Select Committee for their labours and the improvements they had made in the Bill. He thought that the changes which the Committee had made were decided improvements, and would materially relieve the Government from responsibility. It was entirely right and proper that the system of election should be tried in a manner most favorable to success; that if election be tried, it be tried in a substantial manner; that the tax-payers should have the right of election in the case of two-thirds of the Committee and of their Vice-Chairman. He also thought it was an extremely desirable arrangement that the election of members should be made by all the rate-payers at large, by all those owning or occupying property and charged with the payment of rates, and who had paid the rates. That was the view which he would have taken if on him had rested the determination of fixing the qualification of electors; but in so fixing it, the Committee had relieved the Government of considerable responsibility.

HIS HONOR was also extremely willing to accept the proposal that endowments for the support of hospitals and dispensaries, and for the promotion of vaccination, should be voluntary, as it was proposed expenditure on account of education should be. With reference to the observations which fell from him on a former occasion—he was alluding to the suggestion that if the Committee thought fit, municipalities under Act III of 1854 should have the option, at their choice, of imposing taxation on the property and means of the inhabitants, as provided by Act VI of 1868, instead of a rate on houses, buildings, and lands—that proposal, he understood, did not meet with favor with some of the members; he understood that the native members of the Committee were decidedly opposed to it. As HIS HONOR had said before, he did not seek by the influence of Government to press this upon the Council. He might say, therefore, that since the native members, as representing the native community, were averse to allowing this option in the mode of taxation, we should not attempt to press that view of the matter.

Then there remained only this letter from the Municipal Commissioners of the Suburbs regarding the registration of births and deaths. The Chairman and the Commissioners were, it appeared, decidedly of opinion that some provision should be made for procuring these statistics of births and deaths. HIS HONOR believed that as far as their municipality and probably some other towns similarly situated were concerned, they were right in thinking that some provision should be made for such registration. At the same time it was doubtful whether this Bill was in a shape suitable for making sufficient provision of that kind. The course taken by the Government was, that they almost despaired of getting reliable mortuary statistics from the whole country, and in order to obtain statistics somewhat reliable, we had selected certain specimen areas in Bengal, both town and country, and had attempted to obtain good mortuary statistics from those selected areas. From some areas we also proposed to obtain statistics of births; our hope being that in that way we might arrive at a correct conclusion of the birth and death-rate in the country,—a conclusion which we should not hope to arrive at if we attempted to deal with the whole population of Bengal. The question therefore was, whether it would not be better to legislate for all these localities, and not only for towns under the several Municipal Acts. He thought on the whole it would be best to receive the report of the Committee which was now presented, but to ask the same Committee to consider the letter of the Suburban Municipality and make a recommendation expressing their opinion on the subject. If the Committee should be of opinion that a provision of that kind would be with advantage incorporated in this Bill, it should be referred back to them with the view of carrying out that change. If the Committee should be of opinion that the subject should be dealt with separately, we should be prepared to introduce a Bill carrying out that view which on examination might be found prudent and sufficient for the purpose.

The question that the letter from the Municipal Commissioners of the Suburbs be referred to the Select Committee, and that the Committee be

requested to express their opinion on the provision of law suggested by the Commissioners, was then put and agreed to.

EMBANKMENTS AND WATER-COURSES.

THE HON'BLE MR. BERNARD said he was requested by the hon'ble member in charge of the Bill to amend the law relating to embankments and water-courses, who was unfortunately unable to be present at this meeting, to state that it was his intention to postpone the motion which stood in his name on the list of business. Mr. Schalch was at present not fully prepared to explain to the Council the schedule of embankments which the Government was bound to maintain. When the information on the subject was ready, he hoped to circulate it to the members, and in the mean time it was proposed to postpone the motion before the Council. MR. BERNARD understood that the hon'ble member on his left (Moulvie Abdool Lutceef) had also consented to postpone the amendment of which he had given notice.

SALE OF ABKAREE LICENSES.

THE HON'BLE MR. BRAUFORT moved for leave to bring in a Bill to amend section 9 of Act XI of 1849, and section 27 of Act XXI of 1856. He said those were two Abkaree Acts, one referring to Calcutta and the other to the mofussil. The Board of Revenue had lately determined to put up to public auction licenses to hold abkaree shops. But a doubt had arisen whether the wording of these laws would justify the Board in selling licenses by auction. Under the strict wording of the law, the Board must first fix the price to be paid for a license, whereas the price would be fixed by the bidding if they were sold to the highest bidder. And therefore he would ask the Council for leave to introduce a short Bill, the object of which was to enable the Board of Revenue to sell such licenses by auction. The Bill was not printed yet, but he might say that he merely proposed to introduce two new sections in lieu of the two sections referred to in the title of the Bill. The law of the mofussil in one section appeared to permit such sales; but in section 27, so far as it referred to the sale of European spirits, a difficulty arose on the wording, and the same was the case in section 9 of the Calcutta Act XI of 1849. He had in the list of business a notice that he intended to ask the President to suspend the rules for the conduct of business in order that the Bill might be at once read in Council. But as it appeared that there was no need of precipitation in the matter, he would not propose to hurry the action of the Council. He would not therefore ask for the suspension of the rules, but would now merely move for leave to bring in the Bill.

HIS HONOR the PRESIDENT said, although this Bill was a small Bill, it was a Bill which touched upon an extremely important subject. It was not only a subject of great importance, but it was a subject of great complication and great difficulty. It was a subject which had puzzled the Legislature of England for a long time past, and which puzzled us now. He was sure that hon'ble members within the walls of this Council, and others outside, who had the welfare and good of the country at heart, must be convinced that nothing was so desirable as to check the excessive consumption of spirits, and with that view the abkaree or excise system had been worked. For some time past we had been anxious to check the growth of consumption, and to remove the imputation of making the vices and weakness of the people administer to the increase of the revenue. The general principle of the measures of Government in this respect had been, as far as possible, to decrease the consumption and increase the tax upon spirits. Considering that a tax upon vices was the most legitimate of all taxes, if by decreasing the consumption we obtained the same or even a smaller revenue, we would be doing a great good to the people. The course for some time adopted was that taken in England, namely, to restrict the number of licenses. But that system was necessarily accompanied by one considerable difficulty, namely, that as the number of licenses was decreased, so the value of the licenses was increased. You had a large publican interest all over the world, and as licenses increased in value, the result was great jobbery and difficulty in regard to the disposal of those licenses. All those who had to do with English politics, general or social, were aware that in England

there was no subject of political jobbery so great as the system of licenses to publicans. The number of licenses being limited and valuable in proportion, it followed that it was a matter of favor to give a license, and that became the subject of great political and social jobbery. Although in this country jobbery to such an extent did not prevail, still here also we were liable to jobbery of one kind or another, and the Government wished, whilst obtaining a legitimate revenue from the sale of spirits and checking the consumption, to remove the possibility of jobbery as far as it could be done. Consequently we had thought it right to attempt the proposed system of selling licenses, which possessed one noted advantage, that favor should be shown to no man; that the number of licenses should be limited; that the number being so limited, the benefit of holding a license should be put up to auction, with a proviso that the purchaser should be a man of respectability. That system had been attempted in several mofussil districts. The general abkaree law of the mofussil, passed in 1856, did, as the hon'ble member had told the Council, admit of that system; but when we came to apply it to Calcutta, where under our own eyes the experiment could best be tried, we found that the law by its letter did not make provision for a system of that kind, but laid down one fixed and rigid rule, that the price for a license should be laid down by the Board of Revenue. We were not aware that our hands were tied up, and licenses were advertised for sale. When the matter was pointed out, it was determined that licenses should be granted only for three months. That would afford time to enable the Council to consider the question. The Bill was designed to untie the hands of the Government so as to permit them to do in Calcutta what they could do in the mofussil, namely, to put up licenses to auction and give them, not as a matter of favor, but to the highest bidders, provided they were respectable men of approved character. In the general Akbarce Act, although provision was made for the sale by auction of licenses for country spirits, no such provision was made for the sale of European spirits. It was well known that of late years a low class of brandies had been imported to compete with country spirits, and it was desirable that licenses for the sale of these spirits should be put upon the same footing. The Bill provided for these two points. It provided for the trial of the system of sale by auction in Calcutta, and put foreign spirits on the same footing as country spirits in the mofussil. It was a small Bill, and would, he thought, most likely meet with general approval. But all over the world the publicans were known to be a powerful body. They held a valuable interest in their hands. The monopolists who had valuable interests would no doubt strive to defend them. He could not hope that the Bill would be passed without opposition on their part. He would not precipitate the consideration of the Bill, but he trusted the members of the Council would, considering the great importance of the matter, give it their best consideration, and that we should come to a just and wise decision undismayed by the cries of monopolists or any one else; we should do what was best for the country in general, for morality, and the good of the mass of the people.

The motion was agreed to.

The Council was adjourned to Saturday, the 8th instant, at 11 A.M.

**PATNA COMMISSIONER'S CIRCULAR ON THE REORGANIZATION OF
THE EDUCATIONAL MACHINERY AND THE ESTABLISHMENT
OF A SOUND SYSTEM OF PRIMARY EDUCATION.**

Circular No. 378. dated Bankipore, the 21st November 1872.

From—S. C. HAYLEY, Esq., Offg Commissioner of Patna,

To—All Magistrates of this Division.

I HAVE the honor to invite your special attention to the Government circulars noted on the margin, which deal with two subjects.

No. 220T, dated 14th October 1872.
No. 3521 A 3 } Forwarding two resolutions of 30th September.
No. 3521 A 4 }

1st.—The reorganization of the educational machinery throughout the country.

2nd.—The expenditure of funds for establishing a sound system of primary education.

2. You will observe that middle and lower class education, in fact all education save that of the Government colleges, is now brought under the direct superintendence and control of the district officer.

3. School Committees have to be formed at each district head-quarters to assist him, and the present local Committees of Public Instruction will form the nucleus of these Committees, and the district officer will be Vice-President and the working officer of the Committee. You are requested to send me up the names of men of influence and intelligence in various parts of the district, whom you would propose to add to the Committee. It should be made as strong as possible, so that the intentions and action of Government in this matter may be understood through the district at large and not merely explained to a few persons at the sudder station.

4. The Government permits also the formation of Sub-divisional Committees, and seeing how great a share the sub-divisional officer will have in carrying out this great work, I am strongly in favor of having such Committees wherever possible. You are requested to report hereafter how far this object is attainable, but your first duty will be to get together a strong and intelligent distinct Committee, and you will nominate either the Head Master of the District School or some other educational officer to be its Secretary. I see no objection to retaining the present Secretary though not an educational officer, where such a course may seem advisable, as *e. g.*, in Tirhoot where Mr. Gordon's services in this capacity would be invaluable, a clerk will be allowed where necessary.

5. You will observe that the Committee's special and important business will be with the higher and middle class Government schools in the district. They will recommend through the Inspector the distribution of funds for these schools, and will nominate to all masterships in such schools under Rs. 50. Their duties in connection with primary schools will be to advise the Magistrate in regard to the disbursement of grants for these schools, and their assistance in this respect and in the establishment of new primary schools ought to be prominently invited. They will also assist the Magistrate in the supervision of Normal Schools. They will have to submit their annual returns and report to the Commissioner, sending a duplicate to the Inspector of the division.

6. In regard to the distribution of funds by the Committee it is to be observed that the local management of aided schools by their own Secretary and Committee under the grant-in-aid rules remains untouched, and I request that you will call attention to the terms offered in paragraph 8 of the resolution on the reorganization of the educational service which vests in municipalities full control and management over those schools to which they are willing to contribute a sum equal to, or more than, that of the Government grant.

7. Besides these Committees (whose duties save that they have the all important power of the purpose, would be mainly consultative) the Magistrate will have as his immediate subordinate the Deputy Inspector of Schools.

8. A Deputy Inspector will be appointed to each district, the present arrangement by which one Deputy Inspector has to work the two districts of Shahabad and Patna being in my opinion no longer possible, and immediate application will be made for the services of an extra Deputy Inspector for

Shahabad. He will be the executive officer immediately under the Magistrate and the sub-deputies under him should be attached similarly to sub-divisional officers as far as possible though where there are many sub-divisions in a district, each Deputy Inspector will have to work two or more sub-divisions.

9. The Deputy Inspector will submit accounts and returns through the Magistrate, and his reports of inspection in schools under the Committee will also go through the same officer as Vice-President of the Committee to the inspector of the division.

10. The Normal Schools will be under the control of the Magistrate acting with the advice of the Committee, and I shall be obliged by a report from each district in regard to paragraph 9 of the same resolution as to whether the Collegiate and High Schools should remain (where there are any) under the circle inspector, or under the educational committee.

11. The Inspectors will nominate to all masterships paid from Rs. 50 to 200, but the Committee will apparently have to be consulted in regard to appointments above Rs. 200, the nomination as for which will be sent up by the Director of Public Instruction to Government.

12. The Magistrates will appoint all masters in *training and primary* schools drawing less than Rs. 50 a month.

13. Such being an outline of the machinery provided by Government, I have to request you to lose no time in bringing it into motion; the points requiring immediate attention in this matter are—

1st.—To select and nominate District Committees.

2nd.—To report on the possibility of forming Sub-divisional Committees.

3rd.—To nominate a Secretary for the District Committee.

4th.—To endeavour under paragraph 8 to induce municipalities to qualify for, and take over, the control of their schools.

5th.—To lay out a line of work of Deputy Inspectors, communicating your proposals to the Inspector.

6th.—To report where necessary upon paragraph 9 of the resolution.

14. I now come to the provision made by Government for a system of primary education in every district, and as the success of this very important scheme will depend almost wholly on the energy and intelligence which the district officer brings to bear upon it, I cannot too strongly urge upon you not only carefully to study the resolution, but to make its effective operation the prominent object of your own cold weather tour and of those of your subordinates.

15. It will be observed that for the work of primary education the Licutenant-Governor assigns to this division

	1872-73.	1873-74.	Total.
	Rs.	Rs.	Rs.
Patna	2,400	7,200 =	9,600
Gya	3,000	9,000 =	12,000
Shahabad	2,800	8,400 =	11,200
Tirhoot	6,000	18,000 =	24,000
Saran	3,000	9,000 =	12,000
Chumparun	2,200	6,600 =	8,800
• Patna ... ..	...	163 +	30
Gya ... ..	...	200 +	38
Shahabad ... ..	...	190 +	30
Tirhoot ... ..	...	400 +	70
Saran ... ..	...	200 +	30
Chumparun ... ..	...	150	

for expenditure during the remaining portion of this and the whole of the ensuing year, the sums noted in the margin, and he looks to us to establish schools in addition to those* assigned in July to something like the following extent.

16. The resolution lays down with all possible distinctness what the object

is that Government have in view, viz., by a system of grants to multiply and somewhat improve the existing class of indigenous schools, but not to introduce a new kind of schools, nor to any extent new subjects of teaching. The great aim and object is to teach reading, writing, and arithmetic in the indigenous language of the province, to practise the boys in the native system of accounts, and teach them something of mensuration and the native system of land survey; and the instruments to be used as teaching are men of the indigenous schoolmaster class, who will be content with emoluments of Rs. 8 or 10 a month, and not the higher class of masters hitherto turned out by our training schools, who will be content neither with the low wages of gurus nor with the native system of teaching. The conditions to be insisted upon are efficiency according to native standards and submission to periodical inspections and

examinations by Government officers; and on those conditions being agreed to, grants may be given to existing schools to some extent, and should be offered to a much larger extent to persons willing to start fresh schools where they are wanted.

17. Grants should in no case exceed Rs. 5 a month, and generally should be as low as Rs. 2 or 3 a month, which would probably be quite enough to induce the *gurus* of existing schools to submit to the conditions to be imposed. The assistance expected by Government from wards' estates and municipalities should not be lost sight of, and you should take full advantage of the Government orders in this respect in the endeavour to establish new schools and to bring the old ones under inspection.

18. You will observe that the Lieutenant-Governor does not insist on all the old *gurumashoys* being brought in for training to a training class, but he thinks that for all the new teachers who may be appointed, and for the younger *gurus* of existing schools, this should also be made a condition.

19. As to the nature and standard of teaching which we should aim at, I commend to your perusal Mr. Clark's report on indigenous education in Mymensing, which is published as an appendix to the resolution, and I beg that you will bear steadily in mind that existing materials and existing systems are to be made use of as much as possible; and that we should not insist on printed books superseding oral repetition and writing paper taking the place of the plantain leaf or dust. Even in such things as regular hours and registers of attendance, we should be very tender to native habits and prejudices. I dwell on this subject not because it is left out of the resolution, but because the subordinate officers of the education department, who will in this matter serve as your hands and eyes, have naturally enough acquired a very marked dislike and contempt for the unmethodical and primitive methods of indigenous teaching, and contrasting it with the improved system under which they have been taught, will, unless carefully checked, endeavour to substitute for it something better perhaps, but wholly different and acceptable neither to the habits nor the means of the class we wish to reach.

20. You should therefore draw out a very simple list of the conditions and on which grants are to be given, including, where you think fit in the case of *gurus* or *meeahjees*, the enforced attendance for a few months at a training class. You will observe that during this attendance at the training class the *guru* will continue to draw the Government grant though he must provide a substitute for his school.

21. Having drawn out these conditions you should, I think, circulate them as widely as possible during your approaching tour, on which you should be accompanied by the Deputy Inspector of your district, and you should make it your special object to select old schools and establish new ones as you move about, and then and there commence the system of grants which Government wish to introduce.

You should direct your sub-divisional officers to assist you in this, carrying out these instructions so far as applicable during their tour, and reporting to you week by week what progress they make, and I request that you will furnish me similarly with monthly reports of the action taken by you to carry out the orders of Government.

22. As regards the class of persons to be selected to start new schools, experience will show you who can be induced and who can be trusted to start them. I do not myself think underpaid *putwaris* likely to be successful schoolmasters in addition to their other duties and occupations, but there are in many villages persons who have been *putwaris*, or taidis to *putwaris*, or who are, as it were seconded *putwaris*, and this might frequently be made use of. But generally *gurumashoys* have relations or pupils who may be induced to set up school in a neighbouring village, and where influential residents assist, the choice will of course be left mainly to them. I do not wish either to fetter you in regard to the proportion in which you would distribute the funds allotted to you; you will find paragraph 11, I think, a useful sketch outline which you can vary or fill up as you please. I only wish to remind

you that the work should be commenced at once and pushed on as rapidly as possible, and to call attention to the following expression of the Lieutenant-Governor's wishes :—

“When the system develops, when the rural municipalities undertake schools with Government assistance, when the demand for and means of education increase, more money may be available, and we may attempt more schools. The object of the present grants is to make a beginning of mass education in the country, and the Lieutenant-Governor hopes to be assured that the money is well spent. He would rather have an assurance of this kind and a demand for more money than be told it has not been possible effectively to spend what is now given.”

23. There remain several points which I should like you to consider in communication with the circle inspector and report about. First, as to indigenous teaching for Mahomedans. The Lieutenant-Governor says similar grants may be given to mukhtubs, but will it be possible to get the indigenous teacher in these schools to teach Hindi and useful acquirements, instead of what they now do. Again, is the Lieutenant-Governor's suggestion, that a fair proportion of Mahomedan teachers are to be appointed, consistent with the enforced teaching of Nagree and Kaithce. I should like a careful report as to the best arrangements to be made for *primary* education among Mahomedans. Next, as to starting training classes at districts and subdivisional head-quarters, and inducing gurus to join them. The means of doing this requires consideration, and on this point I should like you to propose a scheme suited to the circumstances of your district and submit it, as well as the report called for in the preceding paragraph, through the circle inspector to me.

Another point to which I think attention may usefully be directed, is the expediency of taking an educational census in selected villages in each subdivision. What we should require to know is (1) the proportion of boys of a school-going age to the whole population of the village; (2) the proportion actually at schools of different kinds; and (3) the proportion who have picked up instruction without going regularly to school. If to this was added the total proportion of the population who could read and write Hindi, it could give us a useful standard to mark our progress by in the future and a means of comparing one district with another.

24. I shall also be glad to be favored with your views on the question of selecting a limited tract as proposed by the Lieutenant-Governor and saturating it, so to speak, as a model of educational district. I should prefer for the present expending our funds in the widest possible diffusion of primary schools, but there is something also to be said from an experimental point of view on the side of concentration, and if you would prefer directing a portion of your funds to this purpose, I will not oppose.

RESOLUTION ON THE PRINTING BUDGET FOR 1873-74.

FINANCIAL DEPARTMENT.

Calcutta, the 28th February 1873.

READ—

A letter No. 919C, dated the 15th February 1873, from the Accountant-General, submitting with his remarks the budget estimates for "printing" for the year 1873-74.

1. The figures under the several sub-heads of the "printing department" budget are as follows:—

	Actuals of 1871-72.	Grants sanctioned for 1872-73.	Accountant- General's bud- get, 1873-74.
	Rs.	Rs.	Rs.
Bengal Secretariat	77,669	69,000	85,000
Miscellaneous Departments	10,008	2,15,000	1,62,550
Government Publications	24,349	24,000	35,800
Postage Charges	4,413	5,000	.....
Total	1,16,439	3,13,000	2,83,350

The great difference between the "actuals" of 1871-72 and the estimates of the two following years is due to the circumstance that for the earlier year the value and the cost of work done for Government at the Alipore Jail Press was kept out of the provincial accounts. The Lieutenant-Governor has since considered it right that the Jail Department should receive credit for the work done by the Alipore Press, so long as the work is valued at reasonable rates. In the year 1871-72 the actual outturn of the Alipore Jail Press was valued at Rs. 1,13,383; for the year 1872-73 it was estimated at Rs. 2,05,000; and it is taken at Rs. 1,50,450 for the coming year 1873-74. The Lieutenant-Governor has, however, no information of the mode of arriving at these figures, and they must be accepted with reserve.

2. *Bengal Secretariat.*—There is an increase of Rs. 16,000 under this head, of which Rs. 8,000 are on account of establishment and contingencies, and Rs. 8,000 are for the purchase of new type and printing material. The increase on account of establishments and contingencies has been rendered necessary by the great increase in the current work of the office, and is accepted by the Lieutenant-Governor.

3. *Miscellaneous Departments.*—There is a net decrease of Rs. 52,450 under this head. The Alipore Jail Press estimate shows a decrease of Rs. 54,550, while there is a small increase of Rs. 2,100 for "printing at private presses." The decrease in the estimate of receipts for the Alipore Jail Press is due mainly to the revision and reduction of the tariff at which the work is valued. The Accountant-General's estimate under this head is accepted.

4. *Government Publications.*—The Lieutenant-Governor accepts the figures under this head; the provision of Rs. 12,000 for miscellaneous publications during the coming year is allowed.

5. No separate provision has been allowed for "postage charges," the expenditure having been included in the estimate with the contingencies of the gazettes.

6. The sanctioned budget will then stand thus—

	Accountant-General's estimate.	Sanctioned budget grant.
	Rs.	Rs.
Bengal Secretariat	85,000	85,000
Miscellaneous Departments	1,62,550	1,62,550
Government Publications	35,800	35,800
Total	<u>2,83,350</u>	<u>2,83,350</u>

Ordered, that a copy of this resolution be published in the *Calcutta Gazette*, and that copies of the resolution and of the Accountant-General's letter and enclosures be forwarded to the Judicial (Jails) Department of this Office and to the Accountant-General and to the Inspector-General of Jails for information.

APPLICATION FOR PECUNIARY ASSISTANCE TO THE CHITTAGONG MUNICIPALITY.

No. 1209, dated Calcutta, the 3rd March 1873.

From—A. MACKENZIE, Esq., Officiating Secretary to the Government of Bengal in the Judicial Department.

To—The Officiating Commissioner of Chittagong.

I AM directed to acknowledge the receipt of your letter No. 35, dated the 28th ultimo, submitting an application for pecuniary assistance from the Chairman of the Chittagong Municipality.

2. In reply I am desired to say that this is only one case out of several in which the Lieutenant-Governor has very recently found that difficulties have arisen from the fact that the Road Cess Act very properly limits the expenditure of the funds raised under it to the country from which those funds are taken. In Bengal, as in other parts of India, district money has sometimes been largely devoted to the chief towns and stations. Formerly, in Bengal, the local funds of the whole province were first amalgamated, and then distributed at the discretion of the Public Works Department. Under this arrangement favored districts got much, though they often collected little; and less favored districts got little. Then again the funds assigned were spent in both town and country, but, the chief stations often got a lion's share. At the time of the passing of the Road Cess Act it was intended that the towns which are excluded from the operation of the Act should bear their own burdens, and the consequence no doubt is that the Municipalities find some roads thrown on their hands which were heretofore kept up with other money. The Lieutenant-Governor's attention has only lately been specially drawn to this state of things. It seems to him that the towns are able to bear their own burden, and should do so. Not only is it fair that they should, but the funds hitherto used indiscriminately having been assigned to their own proper localities, there are no permanent means of assisting Municipalities. At any rate, any little special and temporary assistance that may be possible must be confined to very special cases in which there is not only very special necessity, but in which it is shown that the Municipalities have already exhausted their resources and their present taxing powers. This last precaution is very necessary. A little time ago when the Lieutenant-Governor objected to the Darjeeling Municipality spending capital instead of income, and an appeal was made on account of the peculiar circumstances of the place and extreme poverty. His Honor found, on looking into the matter, that there was scarcely any local taxation; the Municipality having contrived to live on extraneous grants.

3. In Chittagong, though there is a considerable house-rate, an appeal is now made on account of what is called an "indigent" Municipality, without the house-rate having been raised to the maximum allowed, or any effort having been made to try other sources of taxation allowed by Act III (B.C.) of 1864, under which the Municipality is constituted. Chittagong is a most rising place of trade, and the wealth created by the trade gives opportunities for taxation

to meet its necessities. Probably labor of all kinds commands higher rates there than in almost any part of these provinces, whilst rice, the food of the people, is cheap. The Lieutenant-Governor can imagine no place to which the term "indigent" can less properly be applied, or which could better bear the small maximum of taxation at present allowed by law. The Government already contributes to the Municipal police in consideration of the marine work to be done. No more is done for any other Municipality, and the Lieutenant-Governor thinks it impossible that Government should accept any other burden as a permanent arrangement. The town must pay for its own needs.

4. In consideration, however, of the fact that owing to the rapid extension of its trade, &c., Chittagong may be said to be in a sort of transition state, the Lieutenant-Governor will be willing to give something, once for all, out of money now in hand, on condition that the Municipality do their utmost in the way of taxation, that is, raise the maximum possible under the present law. On that condition he will be prepared to place Rs. 30,000 at the disposal of the Municipality to be spent on permanent improvements, and on the understanding that the money is not to be applied to the purpose of lessening the burden of ordinary maintenance.

No 35, dated Camp Comillah, the 28th January 1873.

From—H. HANKEY, Esq., Commissioner of the Chittagong Division,
To—The Offg. Secretary to the Government of Bengal, Judicial Department.

In submitting the accompanying letter from the Chairman of the Chittagong Municipality, I must beg the indulgence of His Honor the Lieutenant-Governor for again importuning the Government for pecuniary assistance on behalf of this indigent Municipality.

2. I venture to make a second appeal on its behalf, because I think there are many circumstances connected with its condition that entitle it to exceptional treatment and consideration at the hands of the Government. It is a place of more than local importance, and, as the Collector has truly remarked, the place is no longer what it was, an ordinary district head-quarter station, with a harbour visited by a few country-craft; it is becoming a large rice port, with a trade which is daily increasing, and proportionately swelling the custom revenue derived therefrom.

3. In former days head-quarter stations used to receive large grants from Government for the execution of necessary works, and new places like Chittagong, with little internal wealth, are beginning to feel the effects of their desertion. As a port, Chittagong receives no assistance whatever from the Government, and its trade, whilst largely increasing imperial finances, adds nothing to the municipal resources. On the contrary, it may be said to have the opposite effect, since it compels the Municipality to pay its quota for providing European constabulary necessitated by the flourishing condition of its port, and entailing an expenditure which is not made up to it by proportionately increased receipt.

4. The Chairman of the Municipality has not exaggerated the urgent demand that exists for money, and unless some assistance be given the urgency cannot but increase. I see that Rs. 10,000 has been estimated for repair to pucca roads, but this sum is in my opinion *altogether inadequate* to the purpose. Important pucca roads are obliged to be left unrepaired, because the Municipality literally have not the means, either present or prospective, to spend a rupee upon them. The work numbered 1 in the accompanying statement is a most important one, but cannot be taken in hand. The consequence is, that one of the principal thoroughfares has been closed for upwards of a year.

5. There is no station that I know of in more need of assistance than Chittagong, and I trust the state of the provincial finances will admit of some help being accorded.

from that day the Nagas did not
the Nagas then in

Chittagong, the 22nd January 1873.

Chairman of the Municipality, Chittagong,
Commissioner of the Chittagong Division.

adopted at a meeting of the Chittagong Municipal Com-
mittee the honor to forward herewith a statement of certain
works most urgently required, but cannot be undertaken by the
Municipality. The list is not supposed to be exhaustive, but merely exhibits
some of the most necessary works. To put and maintain in thoroughly efficient order all
communications, bridges, drains, &c., within municipal limits, would probably entail an
expenditure of several lakhs of rupees.

2. The total amount, you will observe, comes to Rs. 51,150, or about half a lakh. Our
balance in the treasury on the 16th of this month, after paying bills for November and
December, amounted to Rs. 722-7-6 only. How very inadequate our resources are to meet
the heavy demands that are made upon them, will be recognized from the fact that our total
annual income during the current year is estimated at Rs. 19,354-5-8 only, of which Rs. 9,922
have been allotted to public works.

3. On a former occasion I made application for a grant of money from Government
(vide this office No. 42, dated 6th March 1872), but the reply communicated with your
No. 98, dated 13th April last, was to the effect that Government was not in a position to
make such allotment of funds, and it was suggested that our police expenditure might be
reduced. It had been my intention to effect a reduction under this head, and since I last
wrote this has been done. The force has been reduced by twelve constables; a monthly saving
of Rs. 86 being effected by this arrangement. It would be impossible to retrench further
without sacrificing efficiency; and indeed had our finances been in a more flourishing condition,
I should have been unwilling to reduce to the extent that we have done, for the town is a
large and straggling place, and requires a strong force of police to discharge the duties of
watch and ward effectively.

4. It is difficult to see where any further saving is possible. Our office road, conser-
vancy, and pound establishments are none of them large, and the conservancy establishment is
utterly inadequate to the requirements of the place, consisting as it does of two carts and
sweepers, who are supposed to do scavenging work daily over an area of about 7½ square
miles. It will be seen that an increase under this head has been provided for in the statement
herewith submitted.

5. Our house-tax is already fixed at 6 per cent. on annual value, and as the maximum
rate allowed by law is only 7½ per cent., it is not desirable to raise the assessment. The
income of the Municipality may be capable of some improvement by a judicious levy
of certain cesses, (e.g., wheel and boat-tax, &c.) not hitherto imposed, and it is my intention
to request the finance sub-committee to direct their attention to this matter. But that
our income from local sources, however carefully developed, can ever be sufficient to enable us
to keep the town in even tolerable order, is not to be expected.

6. The statement herewith forwarded speaks for itself, column 2 showing in each case
the necessity for the projected work. I would, however, especially request your attention to
the first item, as very clearly illustrating the impecunious condition to which we have been
reduced. The bridge referred to, situated on one of the main thoroughfares of the town,
leading past the central distillery, the Judge's catchery, and the Government school, was
found to be in an unsafe condition, and accordingly dismantled in April last, since which
time it has not been renewed simply because there was *no money for the work*. All wheel
traffic on the road has of course been stopped, and pedestrians have to walk across the nullah
that was formerly spanned by the bridge.

7. You are aware that from the physical peculiarities of the place, the construction
and maintenance of roads, bridges, &c., is exceptionally costly in Chittagong. The soil is
sandy; the rainfall heavy; and the ground, hilly and broken; there being scarcely any part of
the station that is absolutely level. Consequently expensive protection works (revetment
walls, extra wing walls, pukka side-drains, stone-dams, &c) are necessary, that would not be
required in a less hilly place. During the rains, the metalling of those roads that we can
afford to make pucca has to be constantly repaired and renewed, being absolutely torn up by
the mere surface water rushing down some of the steeper inclines. I have seen this myself
where the side-drainage was ample, and it is simply the rain falling on the road that did the
damage.

8. Another very expensive item is wood-work for rails. The station abounds in deep
khals and yawning chasms, many of them large enough to take in a three-horse omnibus, or
even a much larger vehicle. Some of these have been protected by railings, but many more
have not, and cannot be till we have money to do it. I could point out a dozen places any
morning in an hour's walk where the absence of any sort of barrier involves actual danger to
persons riding or driving along the roads; and even the railings that we have are many of
them so old and rickety as to be of little or no use, and should be renewed, did our funds
permit.

9. I trust I have said enough to show that our position is one of exceptional difficulty
and embarrassment, and hope you will very strongly urge upon Government the necessity of

reconsidering our application for assistance. We have no residents here, who, like Khajah Abdool Gunny and his son would come forward with a lakh-and-a-half of rupees to be spent. Were there any chance of success, I would try what could be done; but our experience of native liberality in the case of the charitable dispensary expect nothing from this source.

10. I believe there are some Municipalities, with far greater resources than we possess, such as Berhampore and Patua, that receive large annual subsidies from Government, Rs. 3,000 per annum is the extent of assistance that we receive, and this, though very acceptable as far as it goes, does not materially improve our position.

11. It is believed that the finances of the Bengal Government are just now in a flourishing condition, and I think you will agree with me that some portion of the available surplus might be usefully applied in relieving the necessities of Chittagong. We are not in a position to negotiate a loan, which while affording temporary relief, would eventually add to our embarrassment. It is therefore necessary to ask for an unconditional grant, and looking at the work to be done, I do not think the figure should be less than half a lakh. Should Government not be prepared to allot so large a sum at once, I would suggest that an additional yearly allowance of Rs. 7,000 be conceded, which, with the Rs. 3,000 already paid, would give us a total annual subsidy of Rs. 10,000. With this amount of assistance, though little could be done at once, works of improvement might gradually be undertaken, and in time the results would be apparent.

12. The town and port of Chittagong are year by year rising in importance, and the place is no longer what it was some years ago—an ordinary district head-quarters station, with a harbour visited by a few coasting craft. The Government derive increased revenue from the increased trade of the port, and it is only just that some portion of this should be devoted to the improvement of the town.

ACCOUNT OF THE SETTLEMENT OF A DIFFERENCE BETWEEN AN ASSAMESE AND SOME NAGAS.

No. 11, dated Gowhatty, the 18th February 1873.

From—COLONEL H. HOPKINSON, Agent to Governor-General, North-East Frontier, and Commissioner of Assam.

To—The Offg. Secy. to the Govt. of Bengal, Political Department.

I HAVE the honor to submit copy of a curious account* from the Deputy Commissioner of Sebsaugor of the settlement of a difference between an Assamese and some Nagas, which I think His Honor the Lieutenant-Governor may read with some interest. It is satisfactory to find the Nagas listening to reason and making reparation, as they have done in this case; but the origin of the difference seems to me the most noticeable part of the business. It is startling to find one of the most peculiar and imaginative of the superstitious beliefs which were rife in Europe some centuries ago, flourishing now-a-days among the Nagas with every detail of it identical and complete.

No. 2, dated Camp Golaghat, the 14th February 1873.

From—MAJOR A. E. CAMPBELL, Deputy Commr., Sebsaugor.

To—The Personal Asst. to the Commr. of Assam, Gowhatty.

REFERRING to a conversation I had with the Commissioner when at Jorehaut regarding a case in which the Banfera Nagas had forcibly taken a buffalo from a ryot of the Bag Maria village in Obhoypore, Boroahchali mouzah, I have the honor to report that on the 5th instant a deputation of the tribe, whose names are entered in the margin, came to my camp, when, in the presence of the complainant, I held an inquiry.

Alie.	Poochoi.
Monjoo.	Poongli.
Nokjau.	Apang.

2. The Nagas did not deny taking the property stated by the complainant, but held that it was given willingly, and their story was as follows.

About a year ago the complainant used to fish in the same stream as they, the Nagas, did, and one day had a quarrel with one of the tribe, when blows were exchanged. This quarrel was settled by the chief of the tribe, each party being obliged to pay something, which was buried, when their differences were supposed to cease.

The Nagas, however, say the complainant never would let the Naga with whom he had a quarrel alone, but in fact haunted him; and when one day he (the Naga) was cutting some flesh off a bullock which had died, he (the Assamese) looked on, which a Hindoo ought not to have done, he moreover, made an image of the Naga which he tortured by *piercing it with a thorn and holding it over the fire.*

From that day the Naga sickened, and eventually died.

The Nagas then, in December last, to the number of 30, went to this man's village and wanted him to go to the chang, but on his refusing, the Nagas state he gave up a buffalo, a piece of cloth, some ducks, and dhan, but complainant denies this, and said all the property was taken by force, and which I believe was the case

3. I pointed out to the Nagas that there was no occasion for such a number of them to go to the village, if the property was given willingly, and that at any rate without my permission no property could be given up in that manner, and I therefore said they must settle the matter with the complainant.

4. A kind of punchayet was formed with the mouzadar at the head, and the case was mutually settled by the Nagas agreeing to pay the complainant Rs 100 at Sebsaugor.

The complainant having stated that he would be satisfied with that amount, I directed the Nagas to swear that all differences were at an end, which they did by biting a tiger's tooth.

On their return to Sebsaugor they paid the money, Rs 100, to the complainant in the presence of the Assistant Commissioner

No 1225, dated Calcutta, the 4th March 1873.

From—L. C. ABBOTT, Esq., Offg. Under-Secy. to the Government of Bengal.

To—The Commissioner of Assam.

I AM directed to acknowledge the receipt of your letter No. 11 of the 18th ultimo, with its enclosure from the Deputy Commissioner of Sebsaugor, giving an account of the settlement of a difference between an Assamese and some Nagas. The account is certainly curious and interesting. The Lieutenant-Governor presumes the case is the one which was referred to in the 5th paragraph of your annual report No 27GT, dated the 22nd January last.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 1st March 1873.

No.	District.	Date of return from each district.	Rainfall at Sadler Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.						
<i>Western Districts.</i>		1873.				
BURDWAN DIV.	1 Burdwan	Mar. 4th*	Nil.	Weather growing hot	Winter crops reaped and gathered; sugarcane being cut and pressed. Spring crops beginning to be sown. Rain much wanted. Grain market cheaper.	Fever decreasing; few cases of cholera within the Culna sub-division.
	2 Bancoorah	" 1st	Nil.	Getting hot, but perceptibly colder during the last two days.	Barley, wheat, and cotton, are doing well; sugarcane and mustard being cut. A good outturn is expected.	"
	3 Beerbhoom	" 1st	Nil.	Warm ...	No change; rain would be beneficial.	"
	4 Midnapore	" 1st	Nil.	Hot and dry	Rain wanted for the cold weather crops.	Sporadic cholera in many parts of the district.
	5 Hooghly	" 1st	Nil.	Clear. Warmer since last report, foggy three mornings.	Winter crops good, and gathered.	"
	Howrah	" 1st	Nil.	Clear; no rain on Saturday night, only it was cloudy	About the Rajapore jheel boro dhan has been sown in nurseries, and in some places the seedlings have been transplanted and look well. Rain is wanted for the young sugarcane and for the jute and sunn—hemp sowings.	"
<i>Central Districts.</i>						
PRESIDENCY DIV.	6 24-Pergunnahs	" 4th	Nil.	Weather clear, strong south-west wind generally prevailing. Heat less oppressive.	Crops all gathered. Rain much wanted and ploughing retarded in consequence.	General health good. Cholera reported in the Diamond Harbour sub-division only.
	7 Nuddea	" 1st	Nil.	Weather warm until the last two days.	The cold weather crops are now fast being gathered. The outturn is generally fair. Indigo wants rain, but the ripe and ripening crops would be injured by it.	"
	8 Jessore	" 1st	Nil.	Cold and clear	Good, except in Jenida and Magoora sub-divisions, where much damage has been caused to peas and kalai by sooa-poka insect	"
RAJSHAHY DIVISION.	9 Moorshedabad	" 1st	Nil.	Unseasonably warm until the 1st March.	Prospects generally fair, but rain is wanted.	Cholera and small-pox prevalent in various parts of the district.
	10 Dinagepore	" 1st	Nil.	Fine. Still cool	Good.	"
	11 Maldah	" 1st	Nil.	Dry and warm; westerly winds.	Wheat, barley, and other crops of the season are doing well. Rain is wanted for the indigo sowings.	"
	12 Rajshahye	" 1st	Nil.	Seasonable	In some parts the til and mustard crops are suffering from insects. Indigo is doing well. Rain is wanted.	"
	13 Rungpore	" 1st	Nil.	Slight rain fell on one day.	Good.	"

* Telegram of the 4th March received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>		1873.				
RAJSHAHYE DIVN.	14 Bograh	Mar. 1st	Nil.	On the first two days of the week the atmosphere was foggy, after that the weather was fine and delightful. Western wind has begun to blow.	There are scarcely any crops on the ground at present but the pulses, which are not yet ripe in some parts of the district. In eastern parts their outturn is hardly expected to exceed half the usual yield.	
	15 Pubna	" " 1st	0·03	Seasonable, fine, and clear.	Some rain wanted, but on the whole the winter crops are all doing well. Some are being cut.	
COOCH BEHAR DIVN.	16 Darjeeling	" " 1st	0·25	High winds	The crops are all very young, and are said to be doing well.	
	17 Julpigree	" " "	"	"	"	Return not received.
	Cooch Behar	" " 1st	Nil.	Fine.	Gathering of mustard seed nearly over. Tobacco and wheat promise to be moderately good, but rain is wanted.	
<i>Eastern Districts.</i>						
DACCA DIVISION.	18 Dacca	" " 4th*	Nil	Weather fair and dry	Prospects of crops fair; rain much wanted in every part of the district.	
	19 Furreedpore	" " 1st	1·40	A shower of rain on Sunday, and slightly cloudy the following day. Clear sunshine the rest of the week.	The rubees crops are very poor, and in some places dried up. The rain too partial to have done much good. In the jurisdiction of the station of Furreedpore, in which only the rain has fallen, some good will be done to the rubees crops; the other parts are suffering from want of rain.	
	20 Backergunge	" " 1st	·14	Warmer than before	Paddy harvest over and sugarcane harvest progressing.	
	21 Mymensing	" " 1st	Nil.	Cloudy and rather cooler than last week. A little rain in the north-west of the district.	Land is being ploughed for rice cultivation; a little rain would be beneficial.	
	22 Sylhet	" Feb. 22nd	Nil.	Hottish for this season; cloudy on the 22nd.	The state of the crops is the same as last week; boro crops promising.	
CHITTAGONG DIVN.	23 Cachar	" " 22nd	0·09	Dull and sultry, but has begun to rain this morning, and it looks that the week shall be a wet one.	A little tea has been made in south Hylakandy.	
	24 Chittagong	" " 22nd	Nil.	Fine and dry; getting perceptibly hot.	Rain wanted for the cold weather crops.	
	25 Noakhally	" " 22nd	Nil.	Weather much hotter than the past week. Sky hazy during the day, nights partially foggy. Agreeable south winds.	Cold weather crops good. A shower of rain would do much good.	
	26 Tipperah	" " "	"	"	"	Return not received.
	27 Chittagong Hill Tracts	" " 22nd	Nil.	Temperature increasing daily.	The gathering of mustard is nearly over.	
	Hill Tipperah	" " 22nd	·07	Getting warmer. A few drops of rain on the last day of the week.	No change to report. Chillies doing well.	

* Telegram of the 4th March received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BEHAR		1873.				
PATNA DIVISION.	28 Patna	Mar. 4th*	Nil.	The weather was fine up to the night of the 3rd March, when it rained slightly, but with heavy thunder and lightning. Probably heavy rain somewhere near.	Crops being reaped, as also opium, which promises well.	Health of the district generally good, but small-pox has shown itself in some few places.
	29 Gya	" 1st	Nil.	Fine, but inclined to be stormy in the east.	The rubee crop is promising.	
	30 Shahabad	" 1st	Nil.	Weather fair with west wind.	No change since last week. The rubee harvest is going on.	
	31 Tirhoot	" 1st	Nil.	Fair; west winds	The rubee crops continue well; barley and oats are in ear; the tobacco crop is being cut. West winds are not favorable to indigo prospects. Rain is wanted in some places.	
	32 Saran	" 1st	Nil.	Weather fair and is getting warm; wind east and west.	Crops are fair on the whole. The poppy is in flower. Indigo is being put in the ground.	
	33 Chumparan	" 1st	Nil.	Fair. west winds, mornings cold and days warm.	The prospects of the rubee is very fair towards the eastern part of the district, but in other parts it is not so. The probable outturn may be estimated at below $\frac{1}{2}$ of the average of favorable years.	
BHAUGULPORE DIV.	34 Monghyr	" 1st	Nil.	Bright and warm, west winds set in strongly on the 28th February.	Wheat, gram, and rukur on the ground still; the wheat is being reaped; all the other food crops reaped. Harvest north of river Ganges unusually fine, and that on the south very good.	
	35 Bhagulpore	" 4th*	Nil.	Rain fell to the south of the district, but in some places to the north it is still wanted.	Crops generally good.	
	36 Purneah	" 1st	Nil.	Much warmer	The rubee crop is promising, but a little rain is wanted. Ploughing for the bhadoe crop has begun.	
	37 Sonthal Pergunnahs...	" 1st	Nil.	Weather getting cool again; a few drops of rain in places.	No change since last week.	
ORISSA.						
ORISSA DIV.	38 Cuttack	" 4th*	Nil.	Weather cool	Crops flourishing.	
	39 Pooree	Feb. 22nd	Nil.	Fine. No rain	Moog, gaba, and kolthoe, doing well.	Cases of cholera still occur.
	40 Balasore	Mar. 1st	Nil.	Hot and dry with high winds.	No crops on the ground	Cholera very prevalent.
CHOTA NAGPORE.						
	<i>South-West Frontier Agency.</i>					
41	Hazarechaugh	" 1st	Nil.	Seasonable; hot west winds becoming prevalent.	No change to report. The cold weather crops being rapidly got in.	

* Telegram of the 4th March received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
QHOTA NAGPORE.—(Contd.)						
<i>South-West Frontier Agency.—(Contd.)</i>		1873.				
42	Loharduggah	Mar. 1st	Nil.	Hot up to the 27th, when there was a sudden change again to cold, but no rain.	Fair reports of the rubeo crops.	
43	Singbhoom	Feb. 22nd	Nil.	Seasonable. The weather was perceptibly getting warmer, but during the week it has been unusually cold.	Favorable.	
44	Maunbhoom	Mar. 1st	Nil.	Fair with high winds	The outturn of the rubeo crops, which have all been gathered in but gram, has been favorable.	A few cases of sporadic cholera have been reported.
ASSAM AND ADJACENT HILLS.						
45	Goalparah	Feb. 22nd	Nil.	Weather is generally clear and dry, but occasionally cloudy.	Fields being prepared for asu crop. Outturn of sugar is fair.	Small-pox is on the decrease.
46	Kamroop	Mar. 3rd*	Nil.	Weather getting warmer again; mornings still cloudy.	Mustard crop almost gathered. Aus land being broken up. Sugarcane being cut; pulses promise well.	Public health good.
47	Durrung	Feb. 22nd	Nil.	Temperature much higher than last week; little variable breeze.	No crops at present on the ground.	
48	Nowgong	" 22nd	A slight sprinkling of rain on night of 21st February.	Cloudy evenings since the last three days; mornings pleasant.	Ahu land being ploughed. Sugarcane complete. Tea good.	
49	Sebsaugor	" 22nd	0.09	Weather cool with mornings generally foggy and evenings fair. A pretty heavy shower of rain during the week.	Satisfactory	Cholera decreasing.
50	Luckimpore	" 22nd	2.12	Weather unusually warm during the first five days of the week. On Friday rain set in, and cooled the atmosphere.	State of the crops good. Ploughing for alu dhan going on everywhere.	General health of the district very good.
51	Naga Hills	" 15th	Nil.	Clear and fine, but getting a little warm to what it was ten days ago.	Hill men still busy cutting their jooms.	
52	Khasi and Jynteah Hills.	" 22nd	Nil.	Cloudy, with a little rain.	There are no crops on the ground at present.	
53	Garo Hills	" 22nd	0.04	Atmosphere very hazy; strong winds during the last few days. There was a good shower of rain on the night of the 21st, and morning of the 22nd February.	The crops are all gathered now, and the people are engaged in clearing fresh jooms, which work is nearly completed. The rains will do much good.	

* Telegram of the 3rd March received on the 4th.

Published for general information.

CALCUTTA.
The 4th March 1873.

H. J. S. COTTON,
Offg. Asst. Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 9th to 15th Feb. 1873.	Rain from 16th to 22nd Feb. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.		
					Inches.	Up to date.			
BENGAL.									
WESTERN DISTRICTS.									
BURDWAS.	Burdwan	Burdwan	Nil.	Nil.	Nil.	22nd Feb.			
		Cutwa	ditto	0'10	0'10	ditto.			
		Culina	ditto	Nil.	Nil.	ditto.			
	Bancoraah	Burdwan	ditto	ditto	ditto	ditto.			
		Bancoraah	ditto	ditto	ditto	ditto.			
		Sooree	ditto	ditto	0'02	ditto.			
	Midnapore	Midnapore	ditto	ditto	0'18	ditto.			
		Tumlook	ditto	ditto	0'50	ditto.			
		Gurbetta	ditto	ditto	Nil.	ditto.			
			Contal ... { Dy. Colr.'s Office ...	ditto	ditto	ditto		ditto	Not received, 26th Jan. to 1st Feb.
			... { Exe. Engr.'s Office	Not rec.	Not rec.	ditto		4th Jan.	
		Hooghly	Hooghly	Nil.	Nil.	ditto		22nd Feb.	
	Howrah	Serampore	ditto	ditto	0'05	ditto.			
		Howrah	ditto	ditto	0'05	ditto.			
CENTRAL DISTRICTS.									
PRESIDENCY.	24-Pergunnabs	Saugor Island	ditto	ditto	Nil.	ditto.			
		Calcutta	ditto	ditto	ditto	ditto.			
		Alipore... { Dispensary	ditto	ditto	0'10	ditto.			
			... { Jail	ditto	ditto	Nil.		ditto.	
		Russocrahut	ditto	ditto	ditto	ditto.			
		Haraset	ditto	0'02	0'02	ditto.			
		Diamond Harbour	ditto	Nil.	0'45	ditto.			
		Barripore	ditto	ditto	Nil.	ditto.			
		Safkherah	ditto	ditto	0'20	ditto.			
		Barrackpore	ditto	ditto	0'07	ditto.			
		Dum-Dum	ditto	ditto	Nil.	ditto.			
		Kishnaghur	ditto	ditto	ditto	ditto.			
	Bongok	ditto	Not rec.	0'11	15th Feb.				
	Nuddea	Meherpore	ditto	0'25	0'25	22nd Feb.			
		Chooadangah	ditto	Nil.	Nil.	ditto.			
		Kooshitea	ditto	0'06	0'30	ditto.			
	Jessore	Ranaghat	ditto	Nil.	Nil.	ditto.			
		Jessore	ditto	0'04	0'20	ditto.			
		Nurai	ditto	0'00	1'50	ditto.			
		Kheolnoah	ditto	0'30	0'40	ditto.			
		Jendiah	ditto	Nil.	Nil.	ditto.			
		Baairhaut	ditto	Not rec.	ditto	15th Feb.			
	Magoorah	ditto	Nil.	ditto	22nd Feb.				
	RAJSHAHY.	Moorsheedabad	Berhampore	ditto	0'01	0'21		ditto	
Ramporehaut			Not rec.	Not rec.	Nil	8th Feb.			
City Moorsheedabad			Nil.	Nil.	0'25	22nd Feb.			
Jumripore		ditto	0'04	0'87	ditto.				
Azimungee		ditto	Nil.	0'33	ditto.				
Dinagore		ditto	0'24	0'79	ditto.				
Maldah		Maldah	ditto	Nil.	0'45	ditto.			
		Banuleah	ditto	ditto	0'63	ditto.			
Rajshahye		Natore	ditto	ditto	0'61	ditto.			
		Rungpore	ditto	0'24	0'20	ditto.			
Bograh		Ithowanungoo	ditto	Nil.	Nil.	ditto.			
		Titalya	ditto	ditto	0'20	ditto.			
	Bograh	ditto	0'12	0'34	ditto.				
Pubna	Pubna	ditto	0'03	0'17	ditto.				
	Serajungoo	ditto	0'10	0'37	ditto.				
		Darjeeling { Telegraph Office	Not rec.	Not rec.	Nil.	15th Jan.			
		... { Hospital	Nil.	Nil.	0'02	22nd Feb.			
COOCH BEHAR.	Julpigoree	Julpigoree	ditto	ditto	0'05	ditto.			
		Falacotta	ditto	ditto	0'14	ditto.			
	Cooch Behar Tributary State	Buda	ditto	0'50	0'50	ditto.			
		Cooch Behar	ditto	Nil	Nil.	ditto.			
BHUTAN DOOARS	Buxa	ditto	0'20	0'04	ditto.				
EASTERN DISTRICTS.									
Dacca.	Dacca	Dacca ... { Telegraph Office	ditto	0'12	0'12	ditto.			
		... { Hospital	ditto	0'05	0'05	ditto.			
		Moonshogunge	ditto	Nil.	Nil.	ditto.			
	Furzedpore	Manickgunge	ditto	ditto	ditto	ditto.			
		Furzedpore	ditto	ditto	ditto	ditto.			
		Gonlundo	ditto	ditto	ditto	ditto.			
	Backergunge	Hurrisaul	ditto	ditto	0'59	ditto.			
		Burazepore	ditto	ditto	Nil.	ditto.			
		Madarijore	ditto	ditto	0'05	ditto.			
		Fatookhally	ditto	ditto	Nil.	ditto.			
	Mymensing	Dowlat Khan	ditto	ditto	0'22	ditto.			
		Mymensing	ditto	ditto	0'20	ditto.			
Jamsipore		ditto	ditto	Nil.	ditto.				
Syhet	Atteah	ditto	0'01	0'25	ditto.				
	Kishoregunge	ditto	0'08	0'36	ditto.				
Cachar	Syhet	ditto	Nil.	0'83	ditto.				
	Cachar	ditto	0'09	1'27	22nd Feb.				
	Hylandy	Not rec.	Not rec.	1'31	8th Feb.				
		Koyah	Nil.	ditto	0'66	15th Feb.			
CHITTAGONG.	Chittagong	Chittagong { Telegraph Office	ditto	Nil.	0'20	22nd Feb.			
		... { Jail	ditto	ditto	0'35	ditto.			
		Cox's Bazar	ditto	Not rec.	0'00	15th Feb.			
	Chittagong Hill Tracts	Rungamtee Hill	ditto	Nil.	0'40	22nd Feb.			
		Noakhally	ditto	ditto	0'01	ditto.			
	Tipperah	Noakhally	ditto	ditto	Nil.	ditto.			
		Comilla	ditto	0'17	1'14	ditto.			
		Brahmanbariah	ditto	0'07	0'36	ditto.			
		Hill Tipperah	ditto	0'07	0'36	ditto.			

DIVISION.	DISTRICT.	STATION.	Rain from 9th to 15th February 1873.	Rain from 16th to 22nd Feb. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.	
					Inches.	Up to date.		
PATNA.	BHAR.	Patna	Nil.	Not rec.	0.21	15th Feb.		
		Behar	ditto	Nil.	0.55	22nd Feb.		
		Barh	ditto	Not rec.	0.16	15th Feb.		
	Gya.	Dinapore... { Jail ...	Dinapore... { Cantonment	ditto	Nil.	0.21	22nd Feb.	
			ditto	Not rec.	Nil.	15th Feb.		
		Gya	ditto	Nil.	0.17	22nd Feb.		
		Nowadah	ditto	ditto	0.33	ditto.		
		Aurangabad	ditto	ditto	0.12	ditto.		
		Jehanabad	ditto	ditto	0.10	ditto.		
		Arrah	ditto	ditto	0.34	ditto.		
		Shahabad	Sasseram	ditto	ditto	0.11	ditto.	
		Buxar	ditto	ditto	0.50	ditto.		
		Bhuhooah	ditto	ditto	Nil.	ditto.		
	Tirhoot.	Mozufferpore	ditto	ditto	2.20	ditto.		
		Durbangah	ditto	ditto	0.02	ditto	Not received, 1st to 4th January.	
		Hajipore	ditto	ditto	0.15	ditto	Not received, 26th Jan. to 1st Feb.	
		Mudhubani	Not rec.	Not rec.	0.18	25th Jan.		
		Seetamarie	Nil.	Nil.	0.20	22nd Feb.		
	Sarun	Tajpore	Not rec.	Not rec.	0.25	8th Feb.	Not received, 1st to 4th and 12th to 26th January.	
		Chuprah	Nil.	Nil.	0.20	22nd Feb.		
	Chumparun	Sewan	0.04	ditto	0.40	ditto.		
		Moteehari	Nil.	ditto	0.80	ditto.		
	Monghyr	Botliah	ditto	ditto	0.25	ditto.		
		Monghyr	ditto	0.02	0.34	ditto.		
		Iscooserai	ditto	Nil.	0.20	ditto	Not received, 5th to 11th January	
BHAUGULPORE.	Bhaugulpore	Jamooie	ditto	ditto	0.73	ditto.		
		ditto	ditto	0.40	ditto.			
		ditto	ditto	Nil.	ditto.			
	Purneah	Mudheypoorah	ditto	ditto	ditto	ditto.		
		Banka	ditto	ditto	0.70	ditto.		
	Sonthal Pergunnahs	Purneah	ditto	Not rec.	0.27	15th Feb.		
		Kishongunge	ditto	ditto	Nil.	ditto.		
		Arrarah	ditto	Nil.	0.20	22nd Feb.		
	ORISSA.	Deochur	ditto	ditto	Nil.	ditto.		
		Jamtara	ditto	ditto	ditto	ditto.		
Rajmahal		ditto	ditto	ditto	ditto.			
Fakour		ditto	ditto	ditto	ditto.			
ORISSA.	Cuttack	Nyn-Doomka	ditto	ditto	0.26	ditto.		
		Godda	ditto	ditto	0.02	ditto.		
	Cuttack	Telegaph Office	ditto	ditto	Nil.	ditto.		
		Hospital	ditto	ditto	ditto	ditto.		
		Jajipore	ditto	ditto	ditto	ditto.		
	Pooree	Kendrapara	ditto	ditto	ditto	ditto.		
		Jurutsingapore	ditto	ditto	0.70	ditto.		
	Balasore	False Point	ditto	ditto	Nil.	ditto.		
		Balasore	ditto	ditto	ditto	ditto.		
	Cuttack Tributary	Khoordah	ditto	ditto	0.08	ditto.		
Bhuddruck		ditto	ditto	Nil.	ditto.			
CHOTA NAGPORE.	Mehals	Sambalpore	Not rec.	Not rec.	ditto	1st Feb.		
		CHOTA NAGPORE.						
	SOUTH-WESTERN FRONTIER AGENCY.	Hazareebaugh	Hazareebaugh { Jail	Nil.	Nil.	ditto	22nd Feb.	
		Dispensary	ditto	ditto	ditto	ditto.		
	Loharduggah	Pachumba	ditto	ditto	ditto	ditto.		
		Ranchoo	ditto	ditto	0.04	ditto.		
	Singhoom	Palamow	ditto	ditto	Nil.	ditto.		
		Chyenassa	ditto	ditto	0.19	ditto.		
	Maunbhoom	Purulia	ditto	ditto	Nil.	ditto.		
		Gobindpore	ditto	ditto	ditto	ditto	Not received, 26th Jan. to 1st Feb.	
ASSAM & ADJACENT HILLS.	Goalparah	Goalparah	ditto	Not rec.	ditto	15th Feb.		
		Dhobree	ditto	ditto	ditto	ditto.		
	Kamroop	Gowhaty	ditto	0.53	0.04	22nd Feb.		
		Burpottah	ditto	Nil.	0.50	ditto.		
	Durrung	Tezapore	ditto	Not rec.	0.52	15th Feb.		
		Mungledye	ditto	ditto	0.33	ditto.		
	Nowgong	Nowgong	ditto	0.13	0.18	22nd Feb.		
		Sebsaugor	0.52	Not rec.	2.41	15th Feb.		
	Sebsaugor	Sebsaugor	0.13	ditto	0.80	ditto.		
		Golaghat	0.55	ditto	2.41	ditto.		
	Luckimpore	Jorahat	Not rec.	ditto	...	...
		Nazeerh	0.22	ditto	1.75	15th Feb.		
	Naga Hills	Ibbrooghur	0.16	ditto	1.01	ditto.		
		North Luckimpore...	0.14	ditto	2.42	ditto.		
	Khasi and Jynteah Hills.	Suddya	Not rec.	ditto	...	...
		Samooogooding	Nil.	ditto	Nil.	15th Feb.		
	Garohills	Shillong	ditto	ditto	ditto	ditto.		
		Jaowal	ditto	ditto	0.25	ditto.		
	Garohills	Cherrapoonjee	ditto	0.04	0.47	22nd Feb.		
		Tura	ditto	Nil.	Nil.	ditto.		
Benares		ditto	ditto	0.00	ditto.			
		Akyab	ditto	ditto	ditto			

CALCUTTA,
The 1st March 1873.

H. F. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 23rd February to 1st March 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. =100.	WIND.		Rain.	Cloud.	Weather initials.
					Dry.	Wet.		Direct on	Velocity.			
CALCUTTA.	Feb. 23rd	10	29.882	29.900	80.5	74.0	74	S by W	...	...	...	b
		16	29.798	29.744	80.6	70.2	31	N W	...	...	...	b
	24th	10	29.807	29.825	79.0	69.6	51	W by N	...	...	...	b
		16	29.686	29.704	81.0	70.0	31	W N W	...	...	...	b
	25th	10	29.846	29.804	82.5	77.0	70	S S W	...	...	...	b
		16	29.723	29.740	81.5	77.8	51	S	...	...	...	b
	26th	10	29.851	29.863	83.0	78.0	71	W S W	...	...	...	b
		16	29.724	29.742	80.4	79.0	61	S	...	...	...	b
	27th	10	29.837	29.855	82.0	73.0	63	S W	...	...	...	b
		16	29.708	29.731	82.4	77.3	48	S	...	...	...	b
28th	10	29.904	29.923	79.2	61.0	30	N N W	...	...	...	b	
	16	29.781	29.799	80.5	64.0	23	W by N	...	...	...	b	
March 1st	10	29.859	29.877	78.5	62.8	37	N E	...	...	...	b	
	16	29.837	29.855	80.4	68.0	28	N W	...	...	...	b	
SAVON ISLAND.	Feb. 23rd	10	29.911	29.917	82	73	59	W S W	8.1	...	...	b
		16	29.743	29.749	83	75	71	S	12.5	...	...	b, m
	24th	10	29.818	29.824	82	69	48	N N W	5.2	...	...	b, m
		16	29.705	29.711	81	78	75	S S W	7.8	...	...	b, m
	25th	10	29.809	29.875	83	76	74	S S W	5.3	...	...	b, m
		16	29.759	29.765	84	78	75	S	11.8	...	...	b, m
	26th	10	29.881	29.887	84	70	67	S W	21.1	...	...	b, m
		16	29.756	29.763	84	75	64	S S W	21.7	...	...	b, m
	27th	10	29.878	29.884	81	77	71	S S W	23.3	...	...	b
		16	29.739	29.745	81	75	64	S W	18.1	C	...	b, m
28th	10	29.919	29.920	81	64	34	N N W	0.8	...	...	b, m	
	16	29.785	29.791	80	63	18	N N W	7.0	...	...	b, m	
March 1st	10	29.958	29.964	82	62	26	E	4.6	...	...	b, m	
	16	29.851	29.857	81	68	40	S W	5.6	...	...	b, m	
CHITTAGONG.	Feb. 23rd	10	29.885	29.918	80	75	78	E N E	4.5	...	K	b, m
		16	29.724	29.817	82	73	63	W	8.1	...	...	b
	24th	10	29.764	29.850	81	74	70	S	4.2	...	K	b, m
		16	29.604	29.701	82	75	70	S W	14.5	...	K	b
	25th	10	29.828	29.921	79	74	77	S S E	4.8	...	K, KS	b, m
		16	29.730	29.822	87	70	39	S	12.0	...	...	b, m
	26th	10	29.845	29.938	81	74	70	S	5.3	...	...	b, m
		16	29.704	29.858	83	75	67	S W	13.7	...	...	b, m
	27th	10	29.832	29.924	83	73	60	S W	7.7	...	...	b, m
		16	29.718	29.810	83	75	67	W S W	15.7	...	K	m, g
28th	10	29.825	29.918	83	75	70	S	7.9	...	K	b, m	
	16	29.725	29.817	83	76	71	S W	10.6	...	...	b	
March 1st	10	29.873	29.965	81	72	62	W N W	5.3	...	K	b, m	
	16	29.822	29.914	83	67	39	W S W	8.6	...	...	b, m	
MADRAS.	Feb. 22nd	10	30.010	30.010	83	76	71	S E	6	...	...	c
		16	29.890	29.920	84	76	67	S E by E	8	...	...	b
	23rd	10	29.987	30.017	83	76	71	S by E	7	...	...	c
		16	29.827	29.857	89	75	49	S S E	4	...	...	b
	24th	10	29.899	29.929	85	76	64	S S E	7	...	...	b
		16	29.775	29.805	80	76	61	S E by S	10	...	...	b
	25th	10	29.924	29.954	83	74	66	S by E	9	...	...	c
		16	29.812	29.842	86	69	38	S E by S	9	...	...	b
	26th	10	29.900	29.980	84	70	48	S E by S	8	...	...	b
		16	29.834	29.864	82	70	52	S E by S	10	...	...	b
27th	10	29.905	29.995	82	69	48	S S E	9	...	...	b	
	16	29.824	29.854	83	73	60	S E by S	9	...	...	b	
28th	10	29.923	29.953	83	73	60	S E by S	6	...	...	b	
	16	29.791	29.821	83	73	60	S E by S	8	...	...	b	
UTTAR.	Feb. 22nd	10	29.878	29.960	81	69	43	W S W	1.4	...	...	b
		16	29.744	29.820	82	69	26	W	4.3	...	K, C	b
	23rd	10	29.845	29.927	87	69	36	W	2.4	...	...	b
		16	29.678	29.757	85	69	21	E S E	0.5	...	...	b
	24th	10	29.749	29.831	86	68	35	E S E	1.5	...	...	b
		16	29.621	29.702	86	69	20	W S W	2.9	...	...	b
	25th	10	29.790	29.872	86	73	51	W S W	1.7	...	...	b
		16	29.665	29.746	82	71	39	S S W	8.0	...	...	b
	26th	10	29.817	29.899	86	73	51	S W	4.8	...	...	b
		16	29.685	29.766	91	73	30	S S W	1.0	...	...	b
27th	10	29.893	29.985	86	71	44	S W	4.2	...	...	b	
	16	29.665	29.746	92	71	31	S S W	8.4	...	S, C, K	b	
28th	10	29.875	2.907	86	61	24	N E	4.7	...	...	b	
	16	29.695	19.778	93	63	19	N	4.6	...	...	b	
ARAR.	Feb. 23rd	10	29.928	29.950	78	71	60	E	0.3	...	...	b
		16	29.760	29.788	81	71	59	W	4.8	...	...	b
	24th	10	29.855	29.877	77	70	68	N E	1.0	...	...	b
		16	29.745	29.765	83	75	67	W N W	2.5	...	...	b
	25th	10	29.912	29.934	79	71	65	N E	0.5	...	...	b
		16	29.806	29.828	82	76	71	W S W	3.3	...	...	b
	26th	10	29.940	29.962	75	72	85	E N E	1.0	...	...	b
		16	29.824	29.848	82	75	70	W	5.1	...	...	b
	27th	10	29.927	29.948	83	70	49	E	0.2	...	...	b
		16	29.814	29.835	83	75	67	W	2.5	...	...	b
28th	10	29.912	29.934	79	75	82	N E	0.5	...	...	b	
	16	29.794	29.815	84	75	64	W	3.6	...	...	b	
March 1st	10	29.927	29.949	82	75	70	N E	...	...	...	b	
	16	29.814	29.836	82	75	70	W	3.5	...	...	b	

* Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 22nd to 28th February 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.		
Feb. ...	22nd	29.869	88.3	69.5	141.0	78.2	70.7	65.4	0.66	W & S S W	... 56.8	...	...	Clear and Cirrocumuli.
	23rd	.805	90.6	73.3	142.2	79.7	72.4	67.3	.67	S S W	... 107.6	...	...	Chiefly clear. Foggy at 6 A.M.
	24th	.745	91.3	69.0	145.0	79.3	70.5	64.3	.62	W by N & W by S	... 119.2	...	...	Clear. Foggy from 3 to 7 A.M.
	25th	.767	92.5	72.0	144.0	80.6	74.6	70.4	.72	S	... 102.7	...	...	Chiefly clear.
	26th	.772	92.4	71.7	145.0	80.4	73.2	68.2	.68	S, S W & S S W	0.8 183.5	...	...	Clear.
	27th	.761	93.5	73.0	141.5	81.3	72.8	66.8	.63	S W & S by W	0.8 252.2	...	●	Clear.
	28th	.808	86.7	69.0	138.0	77.6	64.9	56.0	.49	N by W & W by N	... 199.7	...	...	Clear.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1½ feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	24.5
The max. temperature during the past seven days	...	93.5
The max. temperature during the corresponding period of the past year	...	89.7
The mean humidity during the past seven days	...	0.64
The mean humidity during the corresponding period of the past year	...	0.65
		Inches.
The total fall of rain from 22nd to 28th	... { by lower rain gauge	... Nil.
	... { by anemometer gauge	... Nil.
Ditto ditto ditto	... average of nineteen previous years	... 0.14
Ditto ditto between the 1st January and the 28th February	...	Nil.
Ditto ditto ditto	... ditto, average of nineteen previous years	... 1.37

GOPEENAUTH SEN,
In charge of the Observatory.

The 1st March 1873.

Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor-General's Office, Calcutta, in the month of January 1873.

LATITUDE $22^{\circ} 33' 1''$ north. Longitude $88^{\circ} 20' 34''$ east. Height of the cistern of the standard barometer above the sea-level, 18.11 feet.

MONTHLY RESULTS.

	Inches.
Mean height of the barometer for the month	29.962
Max. height of the barometer occurred at 10 A.M. on the 21st	30.160
Min. height of the barometer occurred at 5 P.M. on the 6th	29.801
<i>Extreme range</i> of the barometer during the month	0.359
Mean of the daily max. pressures	30.038
Ditto ditto min. ditto	29.903
<i>Mean daily range</i> of the barometer during the month	0.135

Mean dry bulb thermometer for the month	68.0
Max. temperature occurred at 3 P.M. on the 7th	84.0
Min. temperature occurred at 5, 6 & 7 A.M. on the 12th	58.0
<i>Extreme range</i> of the temperature during the month	31.0
Mean of the daily max. temperature	77.9
Ditto ditto min. ditto	60.1
<i>Mean daily range</i> of the temperature during the month	17.8

Mean wet bulb thermometer for the month	61.8
Mean dry bulb thermometer above mean wet bulb thermometer	6.2
Computed mean dew-point for the month	56.8
Mean dry bulb thermometer above computed mean dew-point	11.2
Inches.	
Mean elastic force of vapour for the month	0.470

Troy grain.	
Mean weight of vapour for the month	5.19
Additional weight of vapour required for complete saturation	2.34
Mean degree of humidity for the month, complete saturation being unity	0.69
Mean max. solar radiation thermometer for the month	128.8

Inches.	
Rained No. days,—max. fall of rain during 24 hours	Nil
Total amount of rain during the month	Nil
Total amount of rain indicated by the gauge* attached to the anemometer during the month	Nil
Prevailing direction of the wind	NW & NNW.

* Height 70 feet 10 inches above ground.

GOVERNMENT SEN,
In charge of the Observatory.

The 28th February 1873.

Weekly Return of Traffic Receipts on Indian Railways.

CALCUTTA AND SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 22nd February 1873, on 26 miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	8,816	1,317 0 0	151 14 0	15,925 0	480 0 0	48 0 0	179 14 0
Or per mile of railway	315	47 0 0	4 14 0	569 0	17 0 0	1 14 0	6 8 0
For previous 7 weeks of half-year	59,938	8,718 0 0	871 6 0	108,138 0	3,354 0 0	353 8 0	1,224 14 0
Total for 8 weeks	68,749	10,030 0 0	1,008 0 0	124,063 0	4,014 0 0	401 8 0	1,404 8 0
COMPARISON.							
Total for corresponding week of previous year	8,016	1,172 12 6	117 5 7	17,604 20	664 6 3	66 8 9	183 14 4
Per mile of railway corresponding week of previous year	286	41 14 2	4 3 9	620 0	25 11 8	2 7 6	6 11 3
Total to corresponding date of previous year	67,007	9,404 8 0	940 9 0	123,584 0	3,707 15 9	370 16 0	1,311 5 0

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 22nd February 1873, on 1,280 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	120,850	1,92,847 2 11	17,677 13 2	824,913 30	4,23,703 8 3	38,847 14 10	56,525 8 0
Or per mile of railway ... ..	.....	150 10 7	13 16 3	.....	331 1 5	30 7 0	44 8 3
For previous 7 weeks of half-year...	602,440	10,64,189 11 7	97,551 12 10	5,043,009 10	25,83,193 1 0	236,793 3 1	334,343 15 11
Total for 8 weeks	813,270	12,57,046 14 6	115,230 6 0	5,867,923 0	30,06,991 9 3	275,640 17 11	390,870 3 1
COMPARISON.							
Total for corresponding week of previous year	113,226	1,64,767 12 10	15,103 14 4	514,595 10	4,69,724 4 3	43,058 1 1	58,161 15 5
Per mile of railway corresponding week of previous year ... ..	.....	128 11 7	11 16 0	.....	368 15 7	33 12 9	45 8 9
Total to corresponding date of previous year	811,285	12,62,275 15 2	114,791 19 3	6,029,367 30	37,37,269 10 6	342,582 2 8	457,374 1 11

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 22nd February 1873, on 223½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	5,650	22,067 3 1	2,022 16 6	74,258 20	20,763 10 0	1,908 6 8	3,926 3 2
Or per mile of railway ... ..	.....	98 11 9	9 1 0	.....	92 14 5	8 10 4	17 11 4
For previous 7 weeks of half-year...	33,201	1,05,057 13 7	9,930 6 1	457,056 0	1,47,185 14 9	13,402 0 10	23,132 6 11
Total for 8 weeks	38,851	1,27,125 0 8	11,953 2 7	5,31,314 20	1,67,949 8 9	15,305 7 6	27,069 10 1
COMPARISON.							
Total for corresponding week of previous year	4,808	20,246 13 4	1,920 2 6	67,760 20	18,703 3 4	1,714 7 5	3,654 9 11
Per mile of railway corresponding week of previous year ... ..	.....	93 14 11	8 12 3	.....	83 13 10	7 13 9	16 6 0
Total to corresponding date of previous year	42,018	1,37,360 14 1	12,850 9 11	590,104 0	1,53,079 11 6	14,087 6 2	28,677 16 1

NALHATI STATE RAILWAY.

Approximate Return of Traffic for week ended 22nd February 1873, on 27½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	1,295	1,402 0 0	140 4 0	7,441 0	571 0 0	57 2 0	107 6 0
Or per mile of railway	73	51 0 0	5 2 0	273 0	21 0 0	2 2 0	7 4 0
For previous 7 weeks of half-year...	10,258	7,439 0 0	746 13 0	38,556 0	3,217 0 0	324 14 0	1,071 12 0
Total for 8 weeks	12,243	8,871 0 0	887 2 0	45,997 0	3,818 0 0	381 16 0	1,208 18 0
COMPARISON.							
Total for corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year ... ..	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year ... ..	.....	.....	.....	.....	.....	.....	.....



SUPPLEMENT TO The Calcutta Gazette.

WEDNESDAY, MARCH 12, 1873.

OFFICIAL PAPERS.

Non-Subscribers to the GAZETTE may receive the SUPPLEMENT separately on payment of Six Rupees per annum if delivered in Calcutta, or Twelve Rupees if sent by Post.

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1873		1873	429
Statement showing Rainfall, Weather, State and		Statement showing the amount of Traffic and Tolls on	
Prospects of the Crops in the different districts of		the Taidundah Canal for the month of January 1873	430
Bengal, as reported to Government during the week		Statement showing the amount of Traffic and Tolls on	
ending the 8th March 1873	419	the Midnapore Section of the High Level Canal	
Weekly Report of Rainfall compiled at the Meteorological Reporter's Office	424	for the month of January 1873	431
		Weekly Result of Traffic Receipts on Indian Railways	432

ABBREVIATED ADDRESSES FOR TELEGRAPH MESSAGES.

No. 92T., dated Fort William, the 4th February 1873.

From—Captain G. T. SKIPWITH, R.F., Assistant Secretary to the Government of India, Public Works Department,

To—LIEUTENANT-COLONEL R. MURRAY, R.E., Officiating Director-General of Telegraphs in India.

In reply to your letter No. 432, dated 22nd instant, in which you propose to adopt certain abbreviated addresses in transmitting service telegrams within Indian limits, I am directed to convey the approval of the Governor-General in Council to the plan proposed, leaving it in your hands to be worked out.

2. You should place yourself in direct communication with the officers concerned regarding the arrangement of details, &c.

No. 93-98T.

COPY, together with copy of the letter and enclosure to which it is a reply, forwarded

to the departments marginally noted for information and guidance.

Financial Department.	Military Department.
Foreign	Legislative
Home	Agriculture, Revenue, and Commerce Department.

No. 432, dated the 22nd January 1873.

From—LIEUTENANT-COLONEL R. MURRAY, R.E., Officiating Director-General of Telegraphs in India,

To—COLONEL C. H. DICKENS, R.A., Secretary to the Government of India in the Public Works Department.

In your No. 335T of the 17th August 1871, the use of a cypher word was sanctioned in the addresses of telegrams to England, &c., in place of the lengthy official titles of the sender and addressee.

2. I have now the honor to represent that much unnecessary labor is entailed on this department in transmitting the full official addresses in service telegrams within Indian limits, and request the authority of the Government of India to adopt generally the Code

names already sanctioned, as well as to add to them those mentioned in the annexed list (annexure A).

3. Subject to your concurrence in the advantages of this proposal, I solicit that the several departments and local Governments may be instructed to adopt the Code names in drafting official telegrams, and that the officers of this department may be authorized to codify the address of any service telegram tendered in its unabbreviated state.

4. In the case of telegrams sent out for delivery, the terminal station will endorse the full designation of the addressee of the message envelope.

5. The departmental, official, and general abbreviations in complete form are shown in the annexed extract (annexure B) from a Code of instructions now under preparation in this office.

A.

ALREADY SANCTIONED.

Viceroy	...	...	...	Viceroy.
Governor of Madras or Bombay	...	...	...	Governor.
Grand Master, Star of India	...	...	...	Star.
Commander-in-Chief, India	...	...	...	Chief.
" " Madras or Bombay	...	...	...	Army.
Lieutenant-Governor of Bengal, North-Western Provinces, or Punjab	...	...	...	Lt. Govr.
Secretary to Government of India, Financial Department	...	...	...	Financial.
" " Foreign	...	...	...	Foreign.
" " Home	...	...	...	Home.
" " P. Works	...	...	...	Works.
" " Military	...	...	...	Military.
" " Dept. of Agriculture, &c.	...	...	...	Commerce.
Secretary to Government of Bengal	...	...	...	Bengal.
" " Madras	...	...	...	Madras.
" " Bombay	...	...	...	Bombay.
Resident Transport Officer	...	...	...	Transport.
" " in Egypt	...	...	...	Transport.
Resident at Aden	...	...	...	Aden.
Political Resident, Persian Gulf	...	...	...	Resident.

ADDITIONS PROPOSED.

Accountant-General, Public Works Department	...	...	...	Accts. Work.
Adjutant-General of the Army	...	...	...	Adj. Gl.
Collector of Customs	...	...	...	Customs.
Commissary of Ordnance	...	...	...	Arsenal.
Chief Commissioner	...	...	...	Chf. Commr.
Commissioner	...	...	...	Commr.
Commissary-General	...	...	...	Commy. Gl.
Commissariat	...	...	...	Commnt.
Compiler of Postal Accounts	...	...	...	Accts. Post.
Comptroller-General	...	...	...	Accts. India.
Controller of Military Expenditure	...	...	...	Controller, Military.
" of Public Works Accounts	...	...	...	Cr. Works.
Director-General of the Post Office	...	...	...	D. G. Post.
District Superintendent of Police	...	...	...	S. Police.
Executive Engineer	...	...	...	Ex. Engr.
Head Commissioner, Paper Currency	...	...	...	Currency.
Inspector-General of Jails	...	...	...	Jails.
" of Police	...	...	...	Police.
" of Ordnance	...	...	...	Ordnance.
" of Hospitals, British Troops.	...	...	...	Hospitals, British.
" of " Indian Medical Service	...	...	...	" Indian.
Master Attendant	...	...	...	Marine.
Military Secretary to Viceroy	...	...	...	M. G. Gl.
Officer in charge of Treasury	...	...	...	Treasury.
Political Agent	...	...	...	Agent.
Agent to the Governor-General	... } ..	...	...	Agent.
Postmaster	...	...	...	Post.
" General	...	...	...	Post Genl.
Private Secretary to Viceroy	...	...	...	P. G. G.
" " to Governor of Madras or Bombay, or Lieutenant-Governor of Bengal, North-Western Provinces, or the Punjab	...	...	...	P. S.
Quartermaster-General of the Army	...	...	...	Q. M. G.
Assistant	...	...	...	Asst.
Deputy	...	...	...	Dy.
Head	...	...	...	Hd.
Officiating	...	...	...	Offg.

THE BETHUNE SCHOOL

RESOLUTION.

GENERAL DEPARTMENT.

EDUCATION.

Calcutta, the 7th March 1873.

Read again—

The proceedings in this department for the month of July 1872, Nos. 34-35, sanctioning a revised scale of establishment for the Bethune School at a cost, including a first mistress on Rs. 150 per mensem, of Rs. 500 per mensem, with the proviso that Government would make a further grant equal to any sum contributed by native gentlemen up to Rs. 200 per mensem, to provide for a lady superintendent and any other establishment that may be required.

Read again—

Proceedings for August 1872, Nos. 7-8, authorising the investment of two sums aggregating Rs. 1,562-11-6, being the balance of a donation and subscriptions to the school, which are henceforward to be retained on permanent capital, and the interest accruing thereon reckoned as subscriptions towards meeting the grant-in-aid.

Read again—

Proceedings for August 1872, Nos. 9-11, and November 1872, Nos. 146-148, sanctioning special grants in order to make the salary of the lady superintendent of the school up to Rs. 300 and Rs. 250 during May and June 1872, respectively; and calling upon the Director of Public Instruction for a report as to the amount subscribed by native gentlemen towards the support of the school.

Read—

	Rs.
Baboo Joykissen Mookerjee	5 per month.
The late Baboo Shaun Churn Mullick	25 "
Mr. W. C. Bannerjee, <i>Barrister-at-Law</i>	5 "
Mr. Man Mohan Ghose, <i>Barrister-at-Law</i>	5 "
The Hon'ble Baboo Degumber Mitter	3 "
Baboo Rai Bohari Bose	2 "
Baboo Gour Dass Bysack	2 "
Baboo Bhyrub Chauder Mookerjee	2 "
Total	49 "

Report called for above from Mr. Woodrow, Inspector of Schools, giving a list of subscribers as per margin.

Read—

List of donations collected by Rajah Kali Krishna, Bahadoor, which is here subjoined:—

	Rs.
Baboo Poolin Behari Sen of Berhampore	25
His Highness the Maharajah of Patialla	500
Baboo Mohima Runjun Roy Chowdry of Kakinia	100
Baboo Radhanath Halder of Sobha Bazar	10
Moha Rajkoomar Hurrendrakissore, Bahadoor, of Battia	50
His Highness the Maharajah of Travancore	300
Rajkoomar Rama Bormo, Bahadoor, of Travancore	100
Baboo Romori Mohun Roy Chowdry and Unungo Mohun Roy Chowdry, zemindars of Toosh Bhandar... ..	50
Baboo Sylendragiree Sunnyasee, zemindar of Mahigunge	25
Baboo Gireedharyloll Roy, zemindar of Tezhat	25
Baboo Gopalpersaud Bose of Dewan Tooli	20
Baboo Satischander Roy Chowdry, zemindar of Koondee, Gopalpore	20
Baboo Ramdoss Sein of Moorshedabad	25
Rance Sham Mohini of Dinagepore	200
Rajah Kali Krishna Deva, Bahadoor	50
Baboo Prosono Coomar (Ghose of Bow Bazar	15
Sremuttee Kristo Soonderi of Bhaugulpore, Champanagore	50
Baboo Jogindranarain Chowdry of Rungpore	15
Baboo Janookee Bullub Sein of Rungpore	25

1,605

Deduct to be paid for printing circulars and post labels 10

TOTAL ... 1,595

To the above must be added the Rance Surnomai's donation 1,000

Baboo Monylal Mullick, through Mrs. Brietzcke ... 20

GRAND TOTAL ... 2,625

Read—

Demi-official letter from Mrs. Brietzcke, dated 28th January, applying for leave for six months, of which three months to be privilege and the other three months' leave without pay.

RESOLUTION.—From the above-mentioned papers it appears that the Government now gives Rs. 500 towards the support of the school, and that the Lieutenant-Governor promised to give Rs. 200 more if a similar sum were made up by native subscribers. At present the private income which the school enjoys is—

	Rs. per mensem.
Assured subscriptions about	50
School fees	80
Interest to accrue on invested donations, about	20
TOTAL	150

The Lieutenant-Governor considers that under the terms of the Government order the school fees cannot be reckoned as private subscriptions. But he would wish to concede this point to the school, and he accordingly increases the grant to the Bethune School by Rs. 150 a month with effect from the 1st September last; the extra grant will continue so long as the fee and other income of the school is maintained at not less than Rs. 150 a month.

2. The Bethune School appears at present to suffer from the absence of any committee or governing body, the former school committee having resigned some years ago. The Lieutenant-Governor has now asked the gentlemen named in the margin, who have taken interest in the school, to serve on a committee which shall

have the entire control of the school, its establishment, its course of study, and its expenditure. It is the Lieutenant-Governor's impression that the scope and functions of a school to which Government contributes so largely might be considerably extended. The committee, who have been good enough to accept the nomination, will have to propose a fixed scale of establishment on the basis of a contribution of Rs. 650 a month from Government and Rs. 150 from fees and subscriptions. They will also have to consider Mrs. Brietzcke's application for leave; if they consider it should be granted, they will report the arrangements they would propose for the conduct of her duties during her absence. It will be convenient that the committee should make any references to Government that may be necessary through the Director of Public Instruction.

3. The acknowledgments of Government are due to Rajah Kali Krishna, Bahadoor, for his efforts in collecting donations for the school; but the Lieutenant-Governor would have been glad if the list of subscribers had contained more names of the wealthy native gentlemen of Calcutta, who have in other ways shown an interest in the school.

ORDER.—Ordered, that copies of this resolution be forwarded by separate letter to the gentlemen who have kindly consented to join the committee; that it be published in the Supplement to the *Calcutta Gazette*, and be also communicated to the Director of Public Instruction and Accountant-General for information.

RULES FOR DISTRICT COMMITTEES OF PUBLIC INSTRUCTION.

No. 792, dated Fort William, the 24th February 1873.

From—W. S. ATKINSON, Esq., M.A., Director of Public Instruction,
To—The Secretary to the Government of Bengal, General Department.

WITH reference to your office No. 4068, dated 18th November 1872, I have the honor to forward herewith, for record, a copy of the rules, which have been approved by the Lieutenant-Governor, for the guidance of the District Committees of Public Instruction as constituted by the Government Resolution of the 30th September 1872.

The rules have been communicated to all Commissioners, Magistrates, and Inspectors of Schools.

Rules for the guidance of District Committees of Public Instruction, sanctioned by Government. Dated 1st February 1873.

IN REGULATION DISTRICTS.	IN NON-REGULATION DISTRICTS.	
Commissioner—President.	Commissioner—President.	1. IN each district* the Committee of Public Instruction will be composed of the officers noted in the margin with any other official or non-official residents who may be appointed by Government on the nomination of the Commissioner.
Magistrate—Vice-President.	Deputy Commissioner—Vice-President.	
Joint Magistrate.	Assistant Commissioner.	
Inspector of Schools.	Inspector of Schools.	
Principal of College or Headmaster of High School, if any.	Principal of College or Headmaster of High School, if any.	
Deputy Inspector of Schools.	Deputy Inspector of Schools.	

2. The Secretary to the Committee will be appointed by Government upon the recommendation of the Commissioner.

3. All the Government schools in each district are placed under the supervision of the District Committee.

4. Grant-in-aid schools will be managed by their own Committees under the supervision of the Inspectors, but the grants to such schools will be made on the recommendation of the District Committee, the opinion of the Inspector being required on each several application and on the annual allotment of the district grant.

5. Patshalas and all other schools which receive grants otherwise than under the grant-in-aid rules will be under the control of the Magistrate of the district and the Sub-Divisional Officers assisted by the inspecting officers, and the grants to these schools will be allotted by the Magistrate with the advice of the Committee.

GOVERNMENT ZILLAH SCHOOLS.

6. The current business of the zillah school will be conducted by the Head-master under the general direction and control of the District Committee, and in accordance with the rules of the Department of Public Instruction.

7. The funds of the school will be administered by the Committee. They consist of annual income and funded property.

8. The income comprises (a) receipts from fees and fines; (b) donations and subscriptions; (c) interest of funded property; (d) the net grant from provincial revenues. All receipts must be paid into the treasury.

9. The expenditure will be under the control of the Committee, who will effect all payments by bills drawn upon the treasury. The bills will be drawn monthly or otherwise by the Head-master, and will be countersigned for payment by the Vice-President of the Committee. Sums not exceeding Rs. 100 at any one time may be drawn when required as advances for current expenditure by bills signed by the Vice-President and one other member of the Committee. The balance in favour of the school at the end of each year will be carried to the credit of the school for the following year.

10. The funded property of the school comprises such Government or other securities as the Committee may have been able to acquire; and no portion of such funded property may be expended without the sanction of Government, for which application must be made to the Director of Public Instruction through the Inspector.

Funds belonging to the school, when in the shape of Government or other securities, must be invested in the joint names of the Collector of the district and the Director of Public Instruction.

* These rules do not apply to Calcutta.

11. A regular account of all sums credited and expended will be kept by the school, and an abstract of it in the form annexed marked (A), together with a list of all bills cashed during the quarter, must be forwarded by the Committee to the Inspector quarterly, that is to say, on the 1st day of the months of April, July, October, and January.

12. A register of daily attendance must be kept in the school, and an abstract of it will be forwarded to the Inspector at the end of each quarter in the form annexed marked (B).

13. A visitors' book will also be kept in the school, in which any member of the Committee can enter such remarks as he may think called for, and this book shall be open to the inspection of the masters, and shall be laid before each meeting of the Committee.

14. No pupil can be expelled without an order of the Committee recorded in writing.

15. Appointments to masterships with salaries of Rs. 50 and less than Rs. 200 a month will be made by the Committee on the nomination of the Inspector; but should the Inspector be unable to make any nomination satisfactory to the Committee, the matter will be referred to the Director for the decision of Government.

Appointments to masterships with salaries under Rs. 50 a month will be made by the Committee, who may call on the Inspector for his advice in making such appointments, and will keep him informed of all arrangements actually made.

Appointments to masterships with salaries of Rs. 200 a month and upwards will be made by Government and gazetted.

16. Leave of absence to masters holding appointments of Rs. 50 and less than Rs. 200 a month will be granted by the Committee with the concurrence of the Inspector.

Leave of absence to masters holding appointments of less than Rs. 50 a month will be granted by the Committee without previous reference to the Inspector.

All leave of absence granted by the Committee must be reported by them to the Accountant-General.

Leave of absence to masters holding gazetted appointments will be granted by Government on the recommendation of the Director.

17. The annual examination will be conducted by the Head-master (in November or December), under the orders of the Committee. He will examine all the classes and submit a report to the Committee, setting forth his opinion on the state of each class and his recommendations for class promotions.

The regular class promotions will take place annually at the commencement of the session, but the Committee may at any time promote a boy specially on the recommendation of the Head-master.

18. An annual report on the school will be prepared by the Committee, who will append thereto the Head-master's report *in extenso*, together with a capital account showing the amount and distribution of the funded property of the school, and all tabular statements that may be required from time to time by the Department of Public Instruction.

This report will be submitted to the Commissioner as part of the annual district report, a duplicate of which will be forwarded to the Inspector.

GOVERNMENT NORMAL SCHOOLS.

19. Government normal schools will be managed in the same way as Government Zillah Schools.

GOVERNMENT VERNACULAR SCHOOLS.

20. The current business of the vernacular school will be conducted by the Head-master under the general direction and control of the District Committee.

21. The funds of the school will be administered by the Committee. They consist of annual income and funded property.

22. The annual income comprises (a) receipts from fees and fines; (b) donations and subscriptions; (c) interest of funded property; (d) the net great from provincial revenues. All receipts must, as a general rule, be paid into the

local treasury, but in the case of distant schools the Committee may authorize the Head-master to retain the local receipts, and disburse them in part payment of the monthly charges, drawing the balance only from the treasury.

The balance in favour of the school at the end of each year will be carried to the credit of the school for the following year.

23. The funded property of the school comprises such Government or other securities as the Committee may be able to acquire for the school, and no portion of such funded property may be expended without the sanction of Government, for which application must be made to the Director through the Inspector.

Funds belonging to the school when in the shape of Government or other securities, must be invested in the joint names of the Collector of the district and the Director of Public Instruction.

24. The bills will be drawn for two months together by the Head-master, who will send them to the Deputy Inspector of the district, and the Deputy Inspector will pass the bills for payment under the orders of the Magistrate.

The bills will contain all establishment charges due respectively for the two months ending the 31st March, the 31st May, the 31st July, the 30th September, the 30th November, and the 31st January, and will be supported by corresponding accounts and returns. These accounts and returns, together with a list of the bills passed in respect of them, will be forwarded by the Deputy Inspector to the Inspector for final check and audit.

25. A register of daily attendance must be kept in the school, and an abstract of it will be forwarded to the Deputy Inspector at the end of every two months.

26. A visitors' book must be kept in the school for the remarks of visitors. Every inspecting officer, when he visits the school, will make a note in this book.

27. The appointment of masters will be made as laid down for zillah Schools in paragraph 15.

Leave of absence to masters will be granted by the District Committee on applications submitted through the Sub or Deputy Inspector.

28. It will be the duty of the Head-master to furnish the Deputy Inspector of the district with all returns that may from time to time be prescribed, and the Deputy Inspector will submit them with his annual report for the information of the Committee.

AIDED SCHOOLS.

29. A grant is assigned by Government annually to be expended in grants-in-aid to schools of the upper and middle class in each district. These grants will be distributed on the recommendation of the District Committee, who will in each case take the opinion of the Inspector of the Circle. The Committee's proposals for the distribution of the money will be submitted annually to the Director for the sanction of Government through the Inspector and the Commissioner.

When the grants-in-aid have been assigned to schools of these classes, the District Committee will not interfere in the management of the schools except in cases in which the local managers invite their assistance.

30. The Secretaries of aided schools will submit their bills and accounts every two months to the Deputy Inspector of the district, and the Deputy Inspector will countersign the bills for payment.

The two-monthly returns and accounts, together with a list of all bills passed in respect of them, will be forwarded by the Deputy Inspector to the Inspector for final check and audit.

ANNUAL DISTRICT REPORT.

31. The Committee will prepare an annual report on the operations of the year and the educational state of the district, and will append thereto the Deputy Inspector's report *in extenso* with complete statistical tables in the forms prescribed. This report will be submitted to the Commissioner of the Division and a copy will at the same time be forwarded to the Inspector of the Circle.

W. S. ATKINSON,

Director of Public Instruction.

A.

Abstract Account Current of the School
for the Quarter ending the of 187 .

Credited.			Debited.				
	Rs.	A.	P.		Rs.	A.	P.
Assignment from Provincial Revenue for the quarter ..				Amount of establishment bills for the quarter ..			
Schooling fees realized during the quarter, as per Collector's receipt				Amount of contingent bills for the quarter ..			
Fines realized as per ditto ..				Cost of books supplied during the quarter			
				Prize allowance for three months, at Rs. a month			
				†			
Total credited ..				Total debited ..			
Deduct debited ..							
Balance of the quarter ..							
Add balance from previous quarters							
Total balance at credit of the school							

* Here are to be entered also the proceeds of any donation, &c., or any other receipts from whatever sources.
† Here enter any other payments that have been made during the month.

tract of Register of Attendance of the B. School, for the quarter ending the of 187

		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
STUDENTS ON THE ROLL.	Net total of last month.																					
	Admitted during the month.																					
STUDENTS ON THE ROLL.	Quit during the month.																					
	Net total.																					
ANALYSIS OF COLUMN 5.	Scholarship holders.																					
	Free students not scholars.																					
AVERAGE DAILY ATTENDANCE.	No. present.																					
	No. absent on leave.																					
AMOUNT OF FEES AND FINES DUE FOR THE MONTH.	Monthly fees.																					
	Entrance and re-admission fees.																					
AMOUNT OF FEES AND FINES DUE FOR THE MONTH.	Fines.																					
	Unrealised balance from last month.																					
AMOUNT OF FEES AND FINES DUE FOR THE MONTH.	Total due.																					
	Amount actually collected.																					
AMOUNT OF FEES AND FINES DUE FOR THE MONTH.	Balance as yet unrealized.																					
	REMARKS.																					

This Return was forwarded of 187

RESOLUTION ON THE POLICE BUDGET ESTIMATES FOR 1873-74.

FINANCIAL DEPARTMENT.

Calcutta, the 10th March 1873.

READ—

The Accountant-General's letter No. 941C, dated 20th February, submitting the police budget estimates for the year 1873-74 with detailed explanations.

1. The main heads of the budget are as follows :—

	Actuals of 1871-72.	Sanctioned estimate of 1872-73.	Present estimate for 1873-74.
	Rs.	Rs.	Rs.
Presidency and suburban police ...	3,54,696	2,69,200	2,59,202
Provincial superintending officers ...	1,21,925	1,18,500	1,17,796
District police force ...	42,35,310	42,02,600	42,68,095
Frontier police ...	1,10,658	1,39,700	1,39,660
Government contribution to the railway police ...	28,194	28,600	29,773
Government contribution to municipal police ...	30,480	37,700	37,500
Total ...	51,21,604	47,96,400	48,52,026
Deduct receipts ...	5,07,928	26,000	78,200
	46,13,676	47,70,400	47,73,826

2. The reduction under Presidency and suburban police on the "actuals" of 1871-72 is only apparent, and is due to a change in the mode of showing the municipality's share of the suburban police. The reduction of Rs. 10,000 on the present year's budget is, however, real, and is due to the recent revision of the suburban police, which has caused a saving of Rs. 10,000 both to Government and to the municipality. The increase under the head of additional police force for guards at the Presidency is accepted, and the Accountant-General's estimates for this head of the budget may be passed.

3. The estimate for the Inspector-General, his deputies, and his office, is also passed. The local estimate for Rs. 2,390 on account of police clerks and contingencies for the office of the Commissioner of Assam is struck out pending such further report as the Commissioner of Assam may desire to make.

4. The Accountant-General's estimate for the district police officers, inspectors, and constables, is accepted, the increase under the head of "clerks and servants" being said to be due to ordinary progressive increases of salary. The increase from Rs. 3,66,500, the grant for the current year, to Rs. 4,87,457, the estimate for next year on account of "contingent charges" of the district police, is for the most part explained as follows :—

Rs. 57,700—is entered on both sides of the budget, but was omitted last year; this sum represents the share which policemen pay towards the cost of their uniform, Government paying the rest, namely Rs. 82,000.

Rs. 10,000—is entered for purchase of tents and accoutrements, whereas there has, during the last two years, been no grant under this head. The Lieutenant-Governor permits the grant to stand, as he believes that the police may want new supplies of these things; but the Inspector-General must be cautioned not to sanction expenditure against this grant without pressing and absolute necessity.

Rs. 11,000—on account of rewards to police or outsiders for special service showing signal detective skill or bravery. The grant for this purpose used to stand at Rs. 6,000, but this sum was found to be insufficient. The proposed grant may stand.

Rs. 2,000—on account of land to be taken up for police purposes. No expenditure of this kind has occurred before, and the item may be struck out of the estimates. If incurred at all, it will be included in the grant for buildings.

5. The estimate for petty repairs is put at Rs. 50,800, and a credit of Rs. 40,000 is asked for on account of new buildings. The Lieutenant-Governor agrees to the grant of a sum of—

Rs. 75,000—on account of repairs and minor police works.

Rs. 66,000—have been separately provided in the Public Works Department budget for larger police buildings.

The total grants for police repairs and works will thus amount to Rs. 1,41,000—for the year 1873-74.

6. The rest of the Accountant-General's estimate for the district police force may stand; the total deductions now ordered amount to Rs. 17,000;* but against these deductions must be set a further grant of Rs. 6,244 to meet the cost of extra police sanctioned by Government, as per the Inspector-General's supplementary budget of the 5th February 1873.

* Rs. 2,000 proposed for cost of land.
 „ 15,000 „ „ new police buildings

7. To the proposed grant of Rs. 37,500 on account of municipal police to the towns marginally noted must be added a sum of Rs. 3,000 recently granted in aid of the Chittagong town police.

8. A sum of Rs. 21,572 must be added to the cost of frontier police on account of the police required for the tracts in the Garo Hills, which have been brought under British control since the recent expedition of December 1872. The Government of India has been asked to grant an assignment to meet this extra charge, but meanwhile the item must be included in the Bengal police estimates.

9. The Accountant-General's estimate of the probable receipts for the year 1873-74 is accepted. The entry of the constables' subscription towards the cost of their clothing on both sides of the budget explains the excess above the current year's estimate in which this item was not shown on either side of the account.

10. The sanctioned grants for 1873-74 will then stand thus:—

	Rs.
Presidency and suburban police	2,59,200
Inspecting agency	1,17,800
District force	42,57,300
Frontier police	1,61,300
Government share of railway police	29,800
„ contribution to municipal police	40,500
Total	48,65,900
Add grants in the Public Works Department budget for police buildings	66,200
Grand total	49,32,100
Deduct receipts	78,200
Net cost of police	48,53,900

BOARDING-HOUSE FOR STUDENTS OF THE BERHAMPORE COLLEGE.

THE Lieutenant-Governor, at his recent visit to Berhampore, promised a grant of Rs. 6,000 to found a boarding house for the Berhampore College students, provided a corresponding sum were locally subscribed. He also gave a plot of land as a site.

The Lieutenant-Governor has now the pleasure of acknowledging the munificence of seven inhabitants of Moorshedabad, who have already subscribed for this purpose Rs. 7,152, as per list subjoined:—

	Rs.
Maharane Sarnamoyi	3,000
Annada Prasad Ráy	1,500
Ráy Luchmiput Sing Bahadoor	1,000
Ráy Dhunput Sing Bahadoor	1,000
Baboo Hurruck Chund Nowbika	201
Baboo Budhu Sing Doodhooia	250
Ráy Meghraj Bahadoor	201
	7,152

APPOINTMENT OF JUNIOR CIVILIANS TO THE POLICE DEPARTMENT.

No. 277J., dated the 6th March 1873.

From—A MACKENZIE, Esq., Junior Secretary to the Government of Bengal,
To—The Inspector-General of Police.

I AM directed to acknowledge your letter No. 29T of the 18th ultimo, and its enclosed memorial from certain officers of the Bengal Police, with reference to the Resolution of the 20th March 1872, and to the appointment of junior civilians to the police department.

2. In reply I am to say, for communication to the memorialists, that the Lieutenant-Governor cannot admit the claims of any body of public officers appointed in this country, to an absolutely exclusive monopoly of certain offices. Even Civil Servants brought by covenant from England, after open competition, and to whom certain offices were originally guaranteed, are now liable to have others put into these offices for special reasons. The gentlemen appointed in this country to particular branches of civil employment certainly never had any such guarantee. It would especially not be possible that officers in one branch should themselves hold a monopoly of that branch, and at the same time be eligible to appointments in other branches, which seems to be the claim of some of the officers of several branches of the Administration.

3. At the same time, feeling that the police officers have suffered from reductions, &c., the Lieutenant-Governor was, and is, especially anxious that they should not, on the whole, suffer from the practice which His Honor thinks advisable in the interests of the public service, viz. that officers in the different civil branches should be inter-changeable. The Lieutenant-Governor finds that in truth there is but one gentleman, not a permanent member of the police force, officiating as a District Superintendent, while two police officers of standing are officiating in better civil appointments, one as a Deputy Commissioner of the first class, and another as a first class Jail Superintendent. In the lower grades the advantage has been wholly on the side of the police officers; several of them having been employed in civil situations.

4. As respects delay in promotion, and not filling acting appointments, complained of by the memorialists, I am to say that the Lieutenant-Governor is not aware that there has been anything of the kind, when substantial vacancies exist, except perhaps casually, when there was question and inquiry as to the men to be promoted. The police being one force, and the numbers of officers of each grade limited, it is certainly the case that when an officer is specially employed, beyond the limits of a particular district, or otherwise, and there is no grade vacancy, there is no acting promotion; but this is necessarily so. Where reductions are found desirable, the loss of promotion is also a necessity that cannot be avoided. But, on the whole, His Honor hopes that the prospects of officers now employed will not be very materially injured by present arrangements taken all in all.

WASTE LAND GRANT IN ASSAM.

Dated Calcutta, the 27th February 1873.

From—C. A. B. ANDERSON, Esq., Kelly Den Tea Garden in Nowgong.
To—The Hon'ble G. CAMPBELL, Lieutenant-Governor of Bengal.

I HAVE the honor to put before you in detail the application which I submitted to you verbally at breakfast this morning, and which you were good enough favorably to entertain.

The land referred to consists of about 600 acres, as per the mouzadar's measurement, held under rent-paying potta at Rs. 1-8 per acre per annum, directly adjoining my garden Kelly Den, grant Nojrikhal in the district of Nowgong, Assam.

You were good enough, under the circumstances which I laid before you, to consent to reduce the rent on this land to 12 annas per acre on a lease of ten years, renewable, I presume, at reasonable rates, as it is my intention to bring the land under cultivation at once.

The rent for this land has been paid in two instalments up to 1st October next, and I shall esteem it a great favor if you will pass the necessary order for a final survey of the land, and for the issue of a title in terms of our conversation.

No. 817, dated Calcutta, 5th the March 1873.

From—The Officiating Secretary to the Government of Bengal, in the Revenue Department,
To—The Commissioner of Assam.

I AM directed to inform you that at an interview with the Lieutenant-Governor, Mr. Anderson of the Kelly Den Tea Garden in the district of Nowgong, represented the hardness of the conditions under which he had obtained a piece of jungle land adjoining his garden, and measuring about 600 acres, at Rs. 1-8 per acre. Under the circumstances then represented by Mr. Anderson, His Honor intimated his willingness that Mr. Anderson should have two-thirds of this uncultivated land at half rates, and the rest at full rates, provided he took a lease for ten years; that is, the Lieutenant-Governor would let him have the 600 acres on payment of full rent for 400 acres, and provided there are no preferential rights in the plot, and no other objection can be made to the arrangement. His Honor thinks that under suitable circumstances such an arrangement is good in principle, and is in conformity with the provisions of chapter V of the Assam Settlement Rules. Accordingly, I am to request you will have effect given to it in Mr. Anderson's case, if the land is not likely to be immediately taken up for ordinary crops, and if there is no special reason against the arrangement proposed.

Rainfall, Weather, and State and Prospects of the Crops.

Statement showing Rainfall, Weather, State and Prospects of the Crops in the different Districts of Bengal, as reported to Government during the week ending the 8th March 1873.

No.	District.	Date of return from each district.	Rainfall at Sadler Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.	
BENGAL.							
<i>Western Districts.</i>		1873.					
1	Burdwan	Mar. 11th*		Rain with hailstone on Friday night. Weather fair.	Spring crops thriving well. Grain market unchanged.	Fever decreasing; cholera in sporadic form within Cutwa subdivision.	
RUDEWAN DIVN.	2	Bancoorah	8th	5.49	Cold. Heavy showers of rain throughout the district.	Wheat, barley, and mustard, are almost ripe; a good outturn is expected. The heavy rains that have fallen will considerably benefit the cotton, and will make the paddy fields fit for ploughing.	
	3	Beerbhdm	8th	1.13	There have been some storms, with rain, and the temperature is much lower.	The crops are being reaped. The rain has benefited indigo prospects; but the mango crop has been much injured.	
	4	Midnapore	8th	.72	Cloudy, with several showers of rain, and much cooler.	The rain will be generally beneficial, especially to the indigo.	
	5	Hooghly	8th	.90	Clear, cloudy, hot, foggy mornings.	Crops all gathered. Last night's rain will greatly benefit the ploughing of the land for the ous crops, &c.	Fever greatly decreasing.
		Howrah	8th	.07	First part of week clear, latter part cloudy; slight rain on the last two days.	More rain required, both for the crops on the ground and also for the preparation of lands for the spring sowing.	
<i>Central Districts.</i>							
6	24-Pergunnahs	11th	1.20	Fair weather and warm for the first four days; partial showers of rain, and stormy, on the 6th and 7th. General fall of rain on the 8th, which has considerably lowered the temperature.	Outturn of cold weather crops, which have been gathered, is fair. More rain wanted for ploughing. Mangoes and other fruit trees in full blossom and promising.	Health good. Fever and a few cases of cholera reported in Salkhirah, and a few cases of the latter still occur in other parts of the district. In Diamond Harbour, where it has been worst, it is now diminishing.	
PRESIDENCY DIVN.	7	Nuddea	8th	1.15	Occasional storms and rain. The weather is now very cool for the time of the year.	The greater part of the crops has been now gathered. Operations have to some extent been suspended through the rains. The rain has been welcome for some reasons, but the only crop which has derived benefit is indigo.	
	8	Jessore	8th	.05	Squally	Good.	
BISHNUPUR DIVN.	9	Moorshedabad	8th	1.48	Cloudy, rainy, and cool. Rain on 3rd, 4th, 5th, and 7th instant.	The rain will do great good to indigo and mulberry, and the injury to other standing crops will be slight.	Cholera and small-pox still prevalent, but will probably be driven off by the change.
	10	Dinagepore	8th	.61	Windy—chiefly from south-west. Threatening rain constantly; occasionally raining in violent showers. Occasional distant lightning.	Good.	
	11	Maldah	8th	0.29	Cloudy; occasional drizzling rain, thunder and storm. Wind chiefly from south-east and north-east.	Wheat, barley, and other crops of the season are doing well. A 12-anna crop expected.	

* Telegram of the 11th March received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
BENGAL.—(Contd.)						
<i>Central Districts.—(Contd.)</i>						
RAJSHAHYE DIVN.—(Contd.)	12 Rajshahye	1873. Mar. 8th	1.49	Cloudy—off and on at first. A north-wester in the middle of the week. Subsequently the weather became wet, and occasionally stormy.	The rubee crops and ganja are still being reaped. The rain has been of great benefit. Prospects of indigo and mulberry favorable. Rice lands are now being prepared for the next crop.	
	13 Rungpore	" 8th	0.70	Cloudy, with rain	Good.	
	14 Pograh	" 8th	.44	Weather was fine during the greatest part of the week, but cold and slightly rainy since day before yesterday.	The yield of the sugarcane has been very good. Khesary pulse is not likely to come up to its usual yield. The state of the other cereals is not bad.	
	15 Pubna	" 8th	0.40	Cool and pleasant; some little rain on the 4th and 6th, and night of the 7th. It is still cloudy, and more rain is expected.	The little rain has done much good to the cold weather crops. In the Serajgunge sub-division some injury has been caused by insects, but on the whole they are doing well.	
COOCH BEHAR DIVN.	16 Darjeeling	" 8th	1.01	Hail and a little snow; thunder and lightning at night; showers of rain occasionally.	Crops in the hills very young and doing well. No crops in the plains at present.	
	17 Julpigoree	" 8th	.75	In early part of week, mornings cold, mid-day and evenings hot, latter part of week cloudy, rain and cool weather.	Sursoo crop is very good. Tobacco is good, but has suffered a little from want of rain. Ploughing commenced.	
	Cooch Behar	" 8th	.01	Cool for this time of the year; thunder and rain on Friday night, and hail on the morning of Saturday, the 8th instant.	Tobacco crop has probably been damaged a little by the hail of the 8th instant. Cutting of tobacco crop has commenced. Other crops promising.	
<i>Eastern Districts.</i>						
DACCA DIVISION	18 Dacca	" 11th*	0.5	Weather very cool for the season.	Safflower turning out better than expected, but crop small. Rest fair. More rain wanted.	
	19 Furreedpore	" 8th	Nil.	Winds variable during the week. Sky cloudy and north-wester at night but of no severity, accompanied by drizzling rain not appreciable by the gauge.	The rubee crops are being reaped. They have suffered from drought during the season. Rain now falling will injure those still on the ground, but will facilitate ploughing for the paddy crops of this year.	
	20 Backergunge	" ..	..	.....	.....	Return not received.
	21 Mymensing	" 8th	0.16	Weather cloudy and very cool for the time of the year. More rain may be expected.	Prospects of the crops are favorable; but rain is still wanted, especially in the south of the district, where hardly any rain has fallen.	
	22 Sylhet	" 1st	1.67	Heavy showers during the week. Weather almost every day cloudy. On Thursday night there was a severe gale and hail storm at Guaineghat.	The late rain has done good to the boro crop, which promises well. At Jaintea the late rains have enabled the ryots to go on with their ploughings.	By the severe gale at Guaineghat every house in the bazar, and every police building except one, was blown down. Many persons are hurt—rather badly. No lives as yet reported to have been lost.
23 Cachar	" 1st	2.27	Stormy, with rain; getting rather warm.	No crops on the ground.		

* Telegram of the 11th March received on the same day.

No	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.	
BENGAL—(Contd.)							
<i>Eastern Districts.—(Contd.)</i>							
1873.							
CHITTAGONG DIVN.	24	Chittagong	... Mar. 1st	Nil.	Cool and pleasant in the morning; getting daily warmer.	Prospects of winter crops generally fair; would be bettered by a little rain.	
	25	Noakhally	... " 1st	Nil.	The sky was cloudy throughout the week, with high south wind in the afternoon. The temperature was hotter than in the past week, and there seemed every probability of rain, but on Friday a gentle west wind blew and banished all the clouds and lowered the temperature.	Moog, khasary, chillies, onions, &c., good, but rain very much wanted.	
	26	Tipperah	... " 8th	Nil.	Fair	Good. Rain wanted in parts of the district.	
	27	Chittagong Hill Tracts	Return not received.
		Hill Tipperah	... " 1st	Nil.	Generally clear, but occasionally cloudy: south and south-east wind. Getting warmer every day.	There are no crops on the ground just now except chillies. Rain wanted for cultivation.	
BEHAR							
PATNA DIVISION.	28	Patna	... " 11th*	0.20	Weather fine and seasonable again, though pleasantly cool for the time of year.	The district officer is afraid that the rain will have done some damage to the crops both in the fields and in the thrashing floors, as also to the opium which was being collected.	Health of the district good.
	29	Gya	... " 8th	0.94	Colder and cloudy and stormy, with rain.	Opium and rubee crops are progressing satisfactorily.	
	30	Shahabad	... " 8th	.9	Cloudy, with rain; wind variable; appears to be clearing up.	The rain that has fallen this week has, it is feared, done damage to the rubee, both cut and uncut, and opium crops. Hail fell in many places also, and has done much harm. The extent of the injury is being inquired into.	Small-pox has broken out chiefly in the Buxar sub-division. Otherwise health of the district good.
	31	Tirhoot	... " 8th	2.20	Cool and seasonable ...	There has been a fall of over 2 inches of rain this week, which appears to be general. On the 7th there was a fall of hail, which may do some slight injury to rubee and mango crops. The rain however will be a great benefit.	General health of the district good.
	32	Sarun	... " 8th	1.70	The weather was characterized by heavy fall of rain, accompanied by storm, thunder, and lightning.	The rain has caused injury to the crops in general, specially poppy; the rohur crops stacked in the fields have also been damaged. The extent of damage is being inquired into.	
33	Chumparun	... " 8th	5.	Fair and cool; west winds; heavy storm of rain accompanied with hail fell yesterday.	The storm which occurred yesterday must have done injury to the rubee and poppy crops, but to what extent is not yet known.		

* Telegram of the 11th March received on the same day.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.	
BEHAR.—(Contd.)							
1873.							
BHAUGULPORE DIVN.	34	Monghyr	Mar. 8th	0.66	Nor-wester on the 6th and 7th instant.	The recent rain has damaged the crops somewhat. The crops generally are pretty good.	
	35	Bhaugulpore	" 11th*	Nil.	Heavy rain fell in the neighbourhood of the sudder station.	Prospects of the crops generally good.	
	36	Purneah	" 8th	0.82	There has been a slight fall of rain, which has benefited the crops.	Most of the pulses have been gathered. Wheat and other rubees crops good.	
	37	Sonthal Pergunnahs	" 8th	1.54	Storms of wind and rain on 4th, 5th, 7th, and 8th instant. That on Friday night was accompanied with much hail, and .9 inches of rain was recorded.	Gram and wheat said to be good on the Rajmehal side, but accounts have not been received since the storm of Friday night.	
ORISSA.							
ORISSA DIVN.	38	Cuttack	" 11th*	2.41	No rain at Jajpore; .60 at Kendraparah; .71 at Jugut-singapore.	Crops flourishing.	
	39	Pooree	" 1st	Nil.	South-west wind set in.	No change to be reported.	
	40	Balasore	" 8th	A slight shower on the 8th instant.	Cloudy and unsettled	No crops on the ground.	
CHOTA NAGPORE.							
<i>South-West Frontier Agency.</i>							
	41	Hazareebaugh	" 8th	0.74	The first half of the week was cool and pleasant; the last three days were stormy, with slight showers.	The greater part of the wheat and barley having been cut, these crops have received no injury from the rain, which however has been beneficial to sugarcane. The high winds will injure the mohwah and poppy.	
	42	Loharduggah	" 8th	1.27	Cloudy and damp; the rain seems to have been general.	The reports continue to be favorable.	
	43	Singbhoom	" 1st	Nil.	Seasonable	Favorable	
	44	Maunbhoom	" 8th	0.89	Stormy and cool.	Nothing remains on the ground but gram, and that promises a good outturn.	No fresh cases of cholera reported.
ASSAM AND ADJACENT HILLS.							
	45	Goalparah	" 1st	Nil.	First three days were partly cloudy and partly sunny; the latter part of the week fair and bright; strong westerly breeze.	Difficulty is felt in tilling lands for assco crops owing to want of rain.	
	46	Kamroop	" 10th†	2.	The weather is cold again in the morning, and days pleasant.	Mustard and pulse crops have yielded a fair outturn. Sugarcane still being gathered, and land is being broken up for pous crop.	Public health good.
	47	Durrung	" 1st	0.59	Changeable; frequent thunder-storms, strong north-east wind and strong south-west wind alternating.	No crops on the ground.	Public health good.

* Telegram of the 11th March received on the same day.

† Telegram of the 10th March received on the 11th.

No.	District.	Date of return from each district.	Rainfall at Sudder Station in inches.	Character of the weather in the district as far as known.	State and prospects of the crops at date.	REMARKS.
ASSAM AND ADJACENT HILLS.—(Contd.)		1873.				
48	Nowgong	Mar. 1st	·80	Weather cool and pleasant, cloudy evenings. A severe hail-storm between 8 and 9 P.M. on 27th February.	Tea pruning. Ahu lands are being cultivated. The other crops of the season promising.	
49	Seebaugor	„ 1st	0·67	Weather pretty cool, with mornings and evenings generally cloudy. A few light showers of rain during the week.	Scarcely any crops left on the ground.	
50	Luckimpore	„ 1st	1·13	Early part of the week cloudy and threatening, with strong north-west winds. Severe hail-storms on Friday morning.	Nothing but a little mustard on the ground now.	The cold and damp weather has caused an increase of sickness. Fevers, bowel complaints, and colds, but no epidemic.
51	Naga Hills	Feb. 22nd	Nil.	Fine, but it has been very hot during the past week.	The hill men are still engaged in cutting their jooms.	
52	Khasi and Jynteah Hills.	Mar. 1st	0 32	There have been a few showers during the week throughout the hills.	There are no crops of any kind on the ground at present.	
53	Garo Hills	„ 1st	0 30	There have been high winds, the first part of the week was better than usual, when on Friday there was a very sudden fall in the temperature. The atmosphere has been greatly hazy.	Preparations are now being made for next season's crops. The jooms, which are now nearly all cleared, will shortly be burnt.	

Published for general information.

CALCUTTA,
The 11th March 1873.

H. J. S. COTTON,
Offg. Asst. Secy. to the Govt. of Bengal.

Weekly Report of Rainfall compiled at the Meteorological Reporter's Office.

DIVISION.	DISTRICT.	STATION.	Rain from 16th to 22nd Feb. 1873.	Rain from 23rd Feb. to 1st Mar. 1873.	RAIN FROM 1ST JANUARY 1873.		REMARKS.	
					Inches.	Up to date.		
BENGAL.								
WESTERN DISTRICTS.								
BURDWAN	Burdwan	Burdwan	Nil.	Nil.	Nil.	1st Mar.		
		Cutwa	0.10	ditto	0.10	ditto		
		Culna	Nil.	ditto	Nil.	ditto		
	Bancoorah	Burdwan	ditto	ditto	ditto	ditto		
		Bancoorah	0.05	ditto	0.15	ditto		
		Jehansabad	Nil.	ditto	Nil.	ditto		
	Beerbhoom	Burdwan	ditto	ditto	ditto	ditto		
		Sooore	ditto	ditto	0.02	ditto		
		Midnapore	ditto	ditto	0.14	ditto		
	Midnapore	Midnapore	ditto	Not rec.	0.70	22nd Feb.		
		Tumlook	ditto	Nil.	Nil.	1st Mar.		
		Gurletta	ditto	ditto	ditto	ditto		
Hookhly	Contai	{ Dy. Collr.'s Office	ditto	ditto	ditto	ditto		
	Hookhly	{ Exe. Engr.'s Office	ditto	ditto	ditto	ditto		
	Serampore		ditto	ditto	0.05	ditto		
Howrah	Howrah		ditto	ditto	0.05	ditto		
	Howrah		ditto	ditto	0.05	ditto		
CENTRAL DISTRICTS.								
PRESIDENCY.	24-Pergunnahs	Sauzor Island	ditto	ditto	Nil.	ditto		
		Calcutta	ditto	ditto	ditto	ditto		
		Alipore	{ Dispensary	ditto	ditto	0.10	ditto	
	Nuddia	Alipore	{ Jail	ditto	ditto	Nil.	ditto	
		Basseerhant		ditto	Not rec.	ditto	22nd Feb.	
		Baraset		0.02	Nil.	0.02	1st Mar.	
	Jessore	Diamond Harbour		Nil.	Not rec.	0.15	22nd Feb.	
		Barrapore		ditto	Nil.	Nil.	1st Mar.	
		Satkherah		ditto	ditto	0.20	ditto	
	Nuddia	Barrackpore		ditto	ditto	0.07	ditto	
		Dum-Dum		ditto	ditto	Nil.	ditto	
		Kishinagar		ditto	ditto	ditto	ditto	
Jessore	Bongour		Not rec.	ditto	0.11	ditto	Not received, 10th to 22nd February.	
	Meherpore		0.25	ditto	0.25	ditto		
	Choondangah		Nil.	Not rec.	Nil.	22nd Feb.		
Jessore	Kooshtea		0.06	Nil.	0.30	1st Mar.		
	Ranughat		Nil.	ditto	Nil.	ditto		
	Jessore		0.04	ditto	0.20	ditto		
Jessore	Nural		0.30	0.90	2.60	ditto		
	Khoshneah		0.30	Nil.	0.30	ditto		
	Jendah		Nil.	Not rec.	Nil.	22nd Feb.		
Moorshedabad	Barrackpore		Not rec.	Nil.	ditto	1st Mar.	Not received, 16th to 22nd Feb.	
	Barrackpore		Nil.	ditto	ditto	ditto		
	City Moorshedabad		Not rec.	ditto	Nil.	ditto	Not received, 9th to 22nd Feb.	
Dinapore	Barrackpore		0.01	Nil.	0.21	1st Mar.		
	Barrackpore		Not rec.	ditto	Nil.	ditto		
	City Moorshedabad		Nil.	ditto	0.25	ditto		
Raisahaye	Barrackpore		0.64	ditto	0.67	ditto		
	Azimuttee		Nil.	ditto	0.33	ditto		
	Dinapore		0.23	ditto	0.78	ditto		
Rungpore	Maldah		Nil.	ditto	0.45	ditto		
	Bengleah		ditto	ditto	0.43	ditto		
	Natore		ditto	ditto	0.51	ditto		
Bograh	Rungpore		0.24	ditto	0.29	ditto		
	Bhowanunge		Nil.	ditto	Nil.	ditto		
	Titalya		ditto	0.30	0.50	1st Mar.		
Pubna	Bograh		0.12	Nil.	0.34	ditto		
	Pubna		0.03	ditto	0.17	ditto		
	Serajunge		0.10	ditto	0.57	ditto		
COCH BEHAR.	Darjeeling	{ Telegraph Office	Not rec.	Not rec.	Nil.	15th Jan.		
	Darjeeling	{ Hospital	Nil.	0.25	0.27	1st Mar.		
	Julporee		ditto	0.05	0.10	ditto		
COCH BEHAR TRIBUTARY STATE	Falacotta		ditto	0.04	0.18	ditto		
	Boda		0.50	Nil.	0.50	ditto		
	Coch Behar		Nil.	ditto	Nil.	ditto		
EASTERN DISTRICTS.	Buxa		0.20	0.26	0.90	ditto		
	Dacca	{ Telegraph Office	0.12	Nil.	0.12	ditto		
	Dacca	{ Hospital	0.05	ditto	0.05	ditto		
Dacca.	Moonshogunge		Nil.	ditto	Nil.	ditto		
	Manickunge		ditto	ditto	ditto	ditto		
	Furreehpore		ditto	1.40	1.40	ditto		
Dacca.	Goalundo		ditto	Nil.	Nil.	ditto		
	Burrisaul		ditto	ditto	0.59	ditto		
	Percehpore		ditto	ditto	Nil.	ditto		
Mymensing	Magarpore		ditto	ditto	0.05	ditto		
	Patoakbully		ditto	ditto	Nil.	ditto		
	Dowlat Khan		ditto	ditto	0.22	ditto		
Sylhet	Mymensing		ditto	ditto	0.20	ditto		
	Jamsipore		ditto	0.50	0.30	ditto		
	Attonh		0.01	Nil.	0.25	ditto		
Cachar	Kishoregunge		0.06	ditto	0.56	ditto		
	Sylhet		Nil.	1.67	2.50	ditto		
	Cachar		0.09	2.27	3.54	ditto		
CHITTAGONG.	Hylasandy		0.20	Not rec.	2.11	22nd Feb.	Not received, 5th to 11th Jan. and 26th Jan. to 1st Feb.	
	Koyah		Nil.	ditto	0.66	ditto		
	Chittagong	{ Telegraph Office	Nil.	Nil.	0.20	1st Mar.		
Chittagong Hill Tracts	Chittagong	{ Jail	ditto	ditto	0.35	ditto		
	Cox's Bazar		ditto	Not rec.	0.90	22nd Feb.		
	Rumunullee Hill		ditto	Nil.	0.40	1st Mar.		
Tipperah	Nowkhally		ditto	Nil.	0.01	1st Mar.		
	Comilah		ditto	0.05	0.05	ditto		
	Brahmanbariah		0.17	0.00	0.20	ditto		
Hill Tipperah		0.07	Nil.	0.26	ditto			

DIVISION.	DISTRICT.	STATION.	Rain from 16th to 22nd Feb. 1873.	Rain from 23rd Feb. to 1st Mar. 1873.	RAIN FROM 1st JANUARY 1873.		REMARKS.
					Inches.	Up to date.	
	BEHAR.		Inches.	Inches.	Inches.	1873.	
PATNA.	Patna	Patna	Not rec.	Nil.	0.21	ditto	Not received, 16th to 22nd Feb.
		Behar	Nil.	ditto	0.55	ditto	
		Barh	Not rec.	ditto	0.16	ditto	Not received, 16th to 22nd Feb.
	Gya	Dinapore { Jail	Nil.	ditto	0.21	ditto	Not received, 16th to 22nd Feb.
		{ Cantonment	Not rec.	ditto	Nil.	ditto	Not received, 16th to 22nd Feb.
		Gya	Nil.	ditto	0.17	ditto	
		Nowadah	ditto	ditto	0.32	ditto	
		Aurungabad	ditto	ditto	0.12	ditto	
	Shahabad	Jehansabad	ditto	ditto	0.10	ditto	
		Arrah	ditto	ditto	0.38	ditto	
		Sasaram	ditto	ditto	0.11	ditto	
		Ruzar	ditto	ditto	0.50	ditto	
		Bhubooh	ditto	ditto	Nil.	ditto	
	Tirhoot	Mozufferpore	ditto	ditto	2.20	ditto	
		Durhangah	ditto	ditto	0.02	ditto	Not received, 1st to 4th January.
Hajinore		ditto	ditto	0.15	ditto	Not rec. 26th Jan. to 1st Feb.	
Mudhubani		Not rec.	ditto	0.18	ditto	Not rec. 26th Jan. to 22nd Feb.	
Sectamaroe		Nil.	Not rec.	0.20	22nd Feb.		
Sarun	Tajpore	Not rec.	ditto	0.25	8th Feb.	Not received 1st to 4th and 12th to 25th January.	
	Chuprah	Nil.	Nil.	0.29	1st Mar.		
	Sewan	ditto	ditto	0.40	ditto		
	Chumparun	Motehari	ditto	ditto	0.90	ditto	
		Betlah	ditto	ditto	0.25	ditto	
BHAUGULPORE.	Monghyr	Monghyr	0.02	ditto	0.36	ditto	
		Beoosera	Nil.	ditto	0.20	ditto	Not received, 5th to 11th January.
		Jamooie	ditto	ditto	0.73	ditto	
	Bhaugulpore	Bhaugulpore	ditto	ditto	0.40	ditto	
		Sooool	ditto	ditto	Nil.	ditto	
		Mudheypoornah	ditto	ditto	ditto	ditto	
	Purneah	Banka	ditto	ditto	0.70	ditto	
		Purneah	Not rec.	ditto	0.27	ditto	Not received, 16th to 22nd Feb.
		Kishenkuango	ditto	ditto	Nil.	ditto	ditto ditto ditto.
	Sonthal Pergunnah	Arrarah	ditto	ditto	ditto	ditto	
Deoghur		Nil.	ditto	0.29	ditto		
Jamtara		ditto	ditto	Nil.	ditto		
Rajmehal		ditto	ditto	ditto	ditto		
Pakour		ditto	ditto	ditto	ditto		
ORISSA.	Nya-Doomka	ditto	ditto	0.26	ditto		
	Goldda	ditto	ditto	0.62	ditto		
ORISSA.	Cuttack	Cuttack { Telegraph Office	ditto	ditto	Nil.	1st Mar.	
		{ Hospital	ditto	ditto	ditto	ditto	
		Jajipore	ditto	ditto	ditto	ditto	
	Pooree	Kendrapara	ditto	ditto	ditto	ditto	
		Jucutsinapore	ditto	ditto	0.76	ditto	
		Falac Point	ditto	Not rec.	Nil.	22nd Feb.	
		Pooree	ditto	ditto	Nil.	ditto	1st Mar.
Balasore	Khoordah	ditto	ditto	0.08	ditto		
	Balasore	ditto	ditto	Nil.	ditto		
Cuttack Tributary	Bhuddruck	ditto	ditto	ditto	ditto		
Mohals	Sambalpore	Not rec.	Not rec.	ditto	1st Feb.		
CHOTA NAGPORE.							
SOUTH-WESTERN FRONTIER AGENCY.							
Hazarcebaugh	Hazarcebaugh { Jail	Hazarcebaugh	Nil.	Nil.	ditto	1st Mar.	
		{ Dispensary	ditto	ditto	ditto	ditto	
	Loharduggah	Pachumbah	ditto	ditto	ditto	ditto	
		Ranchee	0.04	ditto	0.04	ditto	
		Balmow	Nil.	ditto	Nil.	ditto	
Singbhoom	Chyebussa	ditto	ditto	0.19	ditto		
	Purulia	ditto	ditto	Nil.	ditto		
Maunbhoom	Gobindpore	ditto	Not rec.	ditto	22nd Feb.	Not received, 26th Jan. to 1st Feb.	
ASSAM & ADJACENT HILLS.							
Goalparah	Goalparah	ditto	ditto	ditto	ditto		
	Dhoobree	ditto	ditto	ditto	ditto		
Kamroop	Gowhatty	0.53	Nil.	0.04	1st Mar.		
	Burpettah	Nil.	ditto	0.50	ditto		
Durrung	Tezpor	0.15	Not rec.	0.67	22nd Feb.		
	Mungledye	0.83	ditto	1.16	ditto		
Nowrong	Nowrong	0.13	0.80	0.98	1st Mar.		
	Sechsangor	0.69	Not rec.	3.10	22nd Feb.		
Sechsangor	Golchhat	0.09	ditto	0.89	ditto		
	Jorehaut	0.20	ditto	2.61	ditto		
	Nazeerah	Not rec.	ditto				
Luckimpore	Behrooghur	2.12	ditto	3.87	22nd Feb.		
	North Luckimpore	1.21	ditto	2.82	ditto		
Naga Hills	Suddya	1.62	ditto	3.44	ditto		
	Santogoodting	Not rec.	ditto	0.57	8th Feb.		
Khasi and Jynteah Hills.	Shillong	0.20	0.52	0.52	1st Mar.		
	Jaowat	0.70	2.00	2.70	ditto		
Garo Hills	Cherrapoonjoo	0.11	3.90	4.35	ditto		
	Pura	0.04	0.50	0.77	1st Mar.		
	Benares	Nil.	Nil.	Nil.	ditto		
	Akyah	ditto	ditto	0.60	ditto		

CALCUTTA,
The 8th March 1873.

H. P. BLANFORD,
Meteorological Reporter to the Govt. of Bengal.

Meteorological Telegraphic Report for the period 2nd to 8th March 1873.

STATIONS.	Date.	Hour.	Barometer reduced to 32°.	Barometer reduced to sea-level.	THERMOMETER.		Humidity Sat. =100.	WIND.		Rain.	Clouds.	Weather initials.
					Dry.	Wet.		Direction	Velocity.			
CALCUTTA.	Mar.											
	2nd	10	29.937	29.955	78.5	69.5	61	W N W	...	...	.....	b
		16	29.788	29.806	86.0	68.8	37	W S W	...	...	.....	b
	3rd	10	29.883	29.901	80.5	74.5	74	S by W	...	...	.....	scuds.
		16	29.773	29.791	88.0	72.5	44	S W	...	...	.....	b
	4th	10	29.990	30.008	76.2	66.0	50	E N E	...	...	.....	b
		16	29.845	29.863	80.2	71.5	45	SSE	...	...	.....	b
	5th	10	29.972	29.990	79.2	73.9	78	S by E	...	...	.....	b
	16	29.825	29.843	87.5	72.5	45	S	...	...	.....	b	
	10	29.998	30.017	73.8	67.8	71	N N E	...	...	.....	b	
	16	29.792	29.811	74.2	70.0	80	W	...	0.02	.....	o	
	10	30.018	30.037	72.0	67.5	78	N	...	0.10	CK	o	
	16	29.845	29.863	81.5	71.5	50	S	...	...	CK	o	
	10	29.973	29.992	72.0	68.0	80	W N W	...	1.00	CK, K	o	
	16	29.827	29.845	81.0	69.0	51	N W	...	...	K	o	
BAVOR ISLAND.	2nd	10	29.938	29.944	81	73	66	W	2.8	...	K	b, m
		16	29.818	29.824	82	74	60	S W	6.9	...	.....	scuds.
	3rd	10	29.908	29.914	84	77	71	S W	10.8	...	N	b
		16	29.808	29.813	83	74	63	S W	20.4	...	KS	b
	4th	10	29.907	29.913	79	71	65	E N E	7.6	...	N	b, m
		16	29.850	29.856	82	73	68	SSE	7.6	...	KS	b
	5th	10	29.984	29.990	81	76	71	W N W	5.1	...	N	b
		16	29.850	29.856	83	74	63	S W	8.6	...	KS	b
	10	30.003	30.009	82	69	48	NE	5.4	...	C, CK	b, m	
	16	29.902	29.908	81	69	51	N	0.5	...	N	b	
	10	30.018	30.024	71	69	76	N N W	5.0	...	N	b	
	16	29.858	29.864	83	72	66	S	0.0	...	K3	b	
	10	29.972	29.978	75	69	72	N N W	8.6	0.60	K	b, v	
	16	29.812	29.818	83	67	39	N	6.9	...	KS	b	
CHITTAGONG.	2nd	10	29.960	29.963	81	64	34	N	5.1	...	.....	b, m
		16	29.745	29.737	83	65	35	W	9.4	...	.....	b, m
	3rd	10	29.853	29.846	78	63	39	N N E	5.9	...	.....	b, m
		16	29.733	29.725	84	67	37	W	7.3	...	.....	b, m
	4th	10	29.913	29.907	77	69	64	N N E	5.8	...	.....	b, m
		16	29.762	29.753	88	71	40	W	6.1	...	.....	b, m
	5th	10	29.872	29.865	81	68	48	N	4.6	...	.....	b, m
		16	29.761	29.752	91	68	28	N	10.2	...	.....	b, m
	10	29.895	29.888	81	68	48	N N E	4.0	...	CK	b, m	
	16	29.761	29.752	90	68	34	W	7.1	...	CK	b, m	
	10	29.885	29.878	80	72	44	N N E	5.2	...	.....	b, m	
	16	29.774	29.765	88	69	34	W	9.7	...	.....	b	
	10	29.926	29.920	73	66	42	N N W	5.1	...	KS	b, g	
	16	29.767	29.750	82	76	48	E	9.5	...	CK, CS	b, m	
MADRAS.	1st	10	29.951	29.951	83	72	59	SE by S	9	...	.....	b
		16	29.840	29.840	83	71	63	SE by S	9	...	.....	b
	2nd	10	29.932	29.932	83	71	62	SE by S	9	...	.....	b
		16	29.837	29.837	83	69	46	SE by S	11	...	.....	b
	3rd	10	29.937	29.937	84	73	56	S	7	...	.....	b
		16	29.804	29.804	82	70	52	SE by S	9	...	.....	b
	4th	10	29.951	29.951	83	71	62	SE	8	...	.....	b
		16	29.827	29.827	83	73	60	SE by E	9	...	.....	b
	5th	10	29.971	29.971	81	71	59	SE	11	...	.....	b
		16	29.833	29.833	83	73	59	SE	8	...	.....	b
	6th	10	29.904	29.904	81	71	59	SE by E	8	...	.....	b
		16	29.837	29.837	83	72	58	E by E	9	...	.....	b
7th	10	29.981	29.981	85	75	60	SE by E	5	...	.....	b	
	16	29.811	29.811	81	75	61	ESE	13	...	.....	b	
CUTTACK.	1st	10	29.898	29.871	81	73	66	E N E	1.3	...	.....	b
		16	29.745	29.724	80	68	29	S W	2.9	...	.....	b
	2nd	10	29.854	29.811	82	71	60	N W	1.1	...	C	b
		16	29.706	29.767	90	71	35	N E	3.1	...	C	b
	3rd	10	29.813	29.805	84	71	60	S S W	2.8	...	.....	b
		16	29.683	29.775	88	73	40	S	9.7	...	S, K	b
	4th	10	29.875	29.857	83	75	67	SE	3.3	...	KS, C	b
		16	29.778	29.800	89	68	84	SE	6.0	...	.....	d
	5th	10	29.876	29.809	76	73	56	S W	1.9	...	C	b
		16	29.765	29.818	81	72	62	ESE	3.3	...	K, CK, C	b
	6th	10	29.823	29.808	79	72	73	NE	3.1	...	C, K	b
		16	29.695	29.883	81	70	65	S	3.5	...	.....	b
7th	10	29.903	29.898	81	72	66	S W	2.0	...	C	b	
	16	29.700	29.813	86	73	51	S S W	4.5	...	CK, C	b	
AT YAR.	2nd	10	29.915	29.837	79	73	73	N	0.1	...	.....	b
		16	29.786	29.808	82	70	52	W	4.3	...	.....	b
	3rd	10	29.920	29.913	82	67	42	E	0.7	...	.....	b
		16	29.804	29.825	83	69	46	W	1.1	...	.....	b
	4th	10	29.841	29.864	82	68	45	N W	0.1	...	.....	b
		16	29.831	29.845	82	75	70	W	4.0	...	.....	b
	5th	10	29.810	29.862	81	72	62	E	0.1	...	.....	b
		16	29.821	29.812	84	74	60	W	0.6	...	.....	b
6th	10	29.950	29.971	83	73	54	N N W	0.1	...	.....	b	
	16	29.801	29.822	80	76	61	S W	1.1	...	.....	b	
7th	10	29.884	29.856	81	71	59	E	0.5	...	.....	b	
	16	29.808	29.830	85	76	60	W	3.5	...	.....	b	
8th	10	29.934	29.955	81	75	64	E	...	...	.....	b	
	16	29.891	29.843	84	72	53	S W	7.0	...	.....	b	

* Velocity of wind in miles per hour.

Results of the Meteorological Observations taken at the Surveyor-General's Office, Calcutta, from 1st to 7th March 1873.

Month.	Date.	Mean reduced barometer.	THERMOMETER.			Mean dry bulb.	Mean wet bulb.	Computed mean dew-point.	Mean degree of humidity.	WIND.			Rain.	Moon's phases.	GENERAL REMARKS.
			Highest reading.	Lowest reading.	Max. solar radiation.					Prevailing direction.	Max. pressure.	Daily velocity.			
March ...	1st	29.873	86.4	64.8	130.5	74.8	62.8	54.4	0.51	Variable.	...	75.6	...	...	Clear.
	2nd	858	86.5	66.0	140.5	75.7	63.5	60.1	.60	NN W & S	...	56.6	...	...	Clear.
	3rd	830	88.3	70.7	142.5	78.4	71.9	67.3	.70	S	...	122.8	...	...	Clear and cumuli.
	4th	898	86.5	68.5	139.5	77.0	69.1	63.6	.65	S & S E	0.8	210.8	...	...	Clear cirrostrati and Cirrocumuli.
	5th	892	88.0	71.0	141.3	78.8	72.0	67.2	.69	S by E & S	0.5	90.9	...	...	Clouds of different kinds.
	6th	923	7.50	70.0	...	72.7	68.6	65.3	.79	Variable.	...	159.0	0.02	...	Stratoni and overcast. Slightly Foggy at 11 P.M. Light rain between 6 and 7, at 12 A.M., 2 and 5 1/2 P.M.
	7th	891	84.5	68.0	137.5	74.9	69.1	65.0	.73	S & Variable.	...	96.2	0.10	...	Clouds of different kinds. Thunder at 8 1/2 A.M. Light rain between 3 and 4, and at 9 A.M.

The mean barometer as likewise the dry and wet bulb thermometer means are derived from the twenty-four hourly observations made during the day.

The dew-point is computed with the Greenwich constants.—The figures in column 10 represent the humidity of the air, the complete saturation of which being taken at unity. The receiver of the lower rain gauge is 1 1/2 feet, and that of the anemometer 70 feet 10 inches above the level of the ground. The velocity of wind, as indicated by Robinson's anemometer, is registered from noon to noon.

The extreme variation of temperature during the past seven days	...	23
The max. temperature during the past seven days	...	8
The max. temperature during the corresponding period of the past year	...	8
The mean humidity during the past seven days	...	0
The mean humidity during the corresponding period of the past year	...	0.6
		Inches.
The total fall of rain from 1st to 7th	... { by lower rain gauge	0.12
	... { by anemometer gauge	0.05
Ditto ditto ditto	... average of nineteen previous years	0.73
Ditto ditto between the 1st January and the 7th March	...	0.12
Ditto ditto ditto	... ditto, average of nineteen previous years	2.10

GOPENAATH SEN,
In charge of the Observatory.

The 10th March 1873.

DEPARTMENT OF PUBLIC WORKS, IRRIGATION BRANCH, BENGAL.

SOUTH-WESTERN CIRCLE.

Statement showing the amount of Traffic and Tolls on the Hidgellee Tidal Canal for the month of January 1873.

LENGTH OF CANAL OPEN—20 MILES.

ABSTRACT.

LOCAL TRAFFIC.

Number of boats.	Nature of cargo.	APPROXIMATE WEIGHT OF CARGO.		TONNAGE, EXCLUSIVE OF EMPTY BOATS.	Ton mls. 45c.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Tonnage, exclusive of empty boats.	Ton mileage.	Tollage.	REMARKS.	
		Mds.	Rs.												Mls.	Rs.
2	Cocanuta No.	6,000	140	350	...	1 12 0	41	Local	4,112	9,933	305	7,948	56 1 3	Canals closed for traffic since 21st ultimo. Toll realized from portion of range No. 1 canal between Banka and the junction of the extension line of new canal with the existing canal.	
1	Plantains "	8,000	20	60	...	0 4 0	...	...	...	...	...	...	...		...
1	Oungalang "	3	...	50	...	0 1 9	...	...	...	...	...	...	...		...
1	Pots "	6,000	80	375	...	1 14 0	...	...	...	...	...	...	...		...
1	Soodreepies "	60	100	475	...	2 6 0	...	...	...	...	...	...	...		...
1	Bamboos "	8 0	100	...	...	2 0 0	...	...	...	...	...	...	...		...
1	Passengers "	8	...	13	...	0 12 0	...	...	...	...	...	...	...		...
1	Empty boats "	...	...	...	...	11 2 0	...	...	...	...	...	...	...		...
6	Tobacco Mds.	580	3,300	975	...	4 14 0	...	...	...	...	...	...	...		...
1	Salt "	125	500	200	...	1 0 0	...	...	...	...	...	...	...		...
5	Firewood "	1,850	328	2,050	...	10 4 0	...	...	...	...	...	...	...		...
3	Miscellaneous "	440	2,200	850	...	4 4 6	...	...	...	...	...	...	...		...
2	Stone Lime "	1,050	1,050	1,000	...	8 0 0	...	...	...	...	...	...	...		...
1	Ghosting "	400	180	600	...	3 0 0	...	...	...	...	...	...	...		...
1	Lime "	125	1,000	225	...	1 2 0	...	...	...	...	...	...	...	...
1	Spices "	32	150	100	...	0 8 0	...	...	...	...	...	...	...	...
1	Corn "	10	800	75	...	0 6 0	...	...	...	...	...	...	...	...
1	Clothes "	...	...	450	...	2 4 0	...	...	...	...	...	...	...	...
1	Ganges water "	...	...	...	...	...	...	...	...	...	...	...	...	...
44		4,112	9,933	8,530	3 6*	56 1 3	41		4,112	9,933	305	7,948	56 1 3		

N. B.—Tonnage shown above is that of the boats and not of the cargo.

DEPARTMENT OF PUBLIC WORKS, IRRIGATION BRANCH, BENGAL.
ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Kendraparāh Canal for the month of January 1873.

LENGTH OF CANAL OPEN—42 MILES.

LOCAL TRAFFIC.										THROUGH TRAFFIC.										ABSTRACT.							
Number of boats.	Nature of cargo.	APPROXIMATE TONNAGE, EXCLUSIVE OF EMPTY BOATS.		Weight of cargo.	Value of cargo.	Rs.	Mds.	Rs.	Mds.	Ton mileage.	Tolls.	Number of boats or Rafts.	Nature of cargo.	Weight of cargo.	Value of cargo.	Rs.	Mds.	Ton mileage.	Tolls.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Ton mileage.	Tolls.	Rs. As P.	
		Maunds.	Tons.																								Maunds.	Tons.	Rs. As. P.	Rs. As. P.
6	Paddy	1,680	...	...	...	840	...	...	...	...	9 0 0	30	Paddy	...	...	3,964	6,728	...	74 4 0	63	Local traffic	...	...	...	...	...	...
5	Jaggry	1,046	...	...	...	523	...	...	...	...	5 14 0	1	Jaggry	...	...	1,435	287	...	4 2 0	...	Local traffic	...	...	...	...	...	...
3	Salt	440	...	...	...	220	...	...	...	...	4 0 0	4	Spices	...	...	358,000	17,900	...	253 12 2	...	Local traffic	...	...	...	...	...	...
1	Turneric	162	...	...	...	81	...	...	...	...	0 12 0	3	Salt-fish	...	...	11,737	939	...	10 2 0	...	Through traffic	...	...	...	...	...	...
2	Dry-fish	405	...	...	...	202	...	...	...	...	1 14 0	3	Horns	...	...	5,600	50	...	7 14 0	...	Through traffic	...	...	...	...	...	...
3	Oil-cake	453	...	...	...	226	...	...	...	...	3 8 0	1	Raisins, &c.	...	...	10,240	256	...	3 12 0	...	Through traffic	...	...	...	...	...	...
3	Passengers, 8 in No.	291	...	...	...	...	...	...	...	...	2 7 0	4	Oil-cake	...	...	1,064	1,215	...	15 2 0	...	Through traffic	...	...	...	...	...	...
1	Firewood	292	...	...	...	146	...	...	...	...	0 8 0	12	Hides	...	...	63,600	6,360	...	97 14 0	...	Through traffic	...	...	...	...	...	...
5	Stone	2,131	...	...	...	1,065	...	...	...	...	2 8 0	4	Passengers, 6 in No.	...	...	...	377	...	5 9 0	...	Local traffic	...	...	...	...	...	...
2	Planks	80	...	...	...	40	...	...	...	...	1 10 0	1	Coal, &c.	...	...	472	630	...	9 6 0	...	Local traffic	...	...	...	...	...	...
26	Empty Rafts	...	...	...	...	...	...	...	...	...	10 2 0	2	Bamboos	...	...	1,250	2,500	...	15 8 0	...	Through traffic	...	...	...	...	...	...
3	Bamboos 1,600 in No.	...	...	...	...	16	...	...	...	...	3 5 5	4	Firewood	...	...	214	2,144	...	15 8 0	...	Through traffic	...	...	...	...	...	...
2	Timbers 72 in No.	...	...	...	...	144	...	...	...	...	12 4 1	1	Planks	...	...	97	213	...	3 6 0	...	Through traffic	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	10	Beams	...	...	1,125	397	...	5 10 0	...	Through traffic	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	1	Timbers	...	...	1,206	4,022	...	69 4 0	...	Through traffic	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	63	Razs	...	...	1,533	219	...	3 0 0	...	Through traffic	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	4	Empty Timbers, 319 in No.	...	...	...	...	...	102 10 0	...	Through traffic	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	Razs	...	...	...	...	...	180 14 0	...	Through traffic	...	...	...	...	...	...
63	...	13,845	7,105	330	4,759	57 12 6	197	...	...	...	...	...	...	...	...	4,60,077	44,854	1,602	67,281	280	...	...	...	...	...	...	...

Tonnage shown above is that of the boats and not of the cargo.

DEPARTMENT OF PUBLIC WORKS, IRRIGATION BRANCH, BENGAL.

ORISSA CIRCLE.

Statement showing the amount of Traffic and Tolls on the Toldundah Canal for the month of January 1873.

LENGTH OF CANAL OPEN—27½ MILES.

LOCAL TRAFFIC.										ABSTRACT.				
Number of boats.	Nature of cargo.	APPROXIMATE		TONNAGE EXCLUSIVE OF EMPTY BOATS.		Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Tonnage, exclusive of empty boats.	Ton mileage.	Tollage.	
		Weight of cargo.	Value of cargo.	Mauins.	Tons.									
3	6,000 Bamboos	53	.....	.....	.....	Rs. A. P. 4 2 8	2	Local Traffic	.....	.....	.....	.....	.....	Rs. A. P. 5 15 6
	Empty	.....	.....	.....	.....	1 13 0	.....	Irrigation Traffic	.....	.....	.....	.....	.....	.....
2		53	.....	.....	.....	5 15 8	2		.....	.....	.....	.....	.....	5 15 8

Tonnage shown above is that of the boats and not of the cargo.

IRRIGATION BRANCH, PUBLIC WORKS DEPARTMENT, BENGAL.

SOUTH-WESTERN CIRCLE.

Cossye Division.

Statement showing the amount of Traffic and Tolls on the Midnapore Section of the High Level Canal for the month of January 1873.
LENGTH OF CANAL OPEN—24 MILES.

LOCAL TRAFFIC.		STORES AND MATERIALS FOR IRRIGATION WORKS.										ABSTRACT.											
Number of boats.	Nature of cargo.	Approximate weight of cargo.	TOTAL EXCLUSIVE OF EMPTY BOATS.		Ton mileage.	Tollage.	Number of boats or rafts.	Nature of cargo.	Approximate weight of cargo.	Approximate value of cargo.	TOTAL EXCLUSIVE OF EMPTY BOATS.		Ton mileage.	Tollage.	Number of boats.	Nature of traffic.	Weight of cargo.	Value of traffic.	Total, exclusive of empty boats.	Ton mileage.	Tollage.	REMARKS.	
			Mds.	Tons.							Mds.	Tons.											Mds.	Tons.
23	Coal	12,610	Rs. 3,016	20,850	...	127 7 6	1	Iron stores	100	500	375	...	5 10 C	1,888	Local	53,128	Rs. 4,50,477	5,451	50,886	1,404	7 3	Tolls for same month in previous year were Rs. 1,216-6-8.	
24	Cotton	3,755	60,540	7,025	...	42 4 0	4	Portland cement	800	2,500	2,275	...	34 2 0	13	Irrigation works	1,883	4,017	115	2,517	68	12 6		
11	Firewood	629	1,271	1,875	...	9 12 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
50	Grain	3,535	13,474	10,150	...	50 13 6	2	Rafts of timber	...	1,650	Logs 33	...	12 6 0	...	...	...	...	...	...	...	...		...
18	Hides and horns	1,327	23,365	3,500	...	21 7 6	...	...	...	...	...	...	1 9 0	...	...	...	...	...	...	...	...		...
18	Jaggery and sugar	1,245	3,970	3,470	...	2 7 0	1	Coal	150	47	250	...	2 0 6	...	...	...	...	...	...	...	...		...
18	Metal	765	5,910	2,750	...	14 0 0	1	Planks	213	220	325	...	3 1 0	...	...	...	...	...	...	...	...		...
161	Miscellaneous	5,161	2,370	20,530	...	1 2 11 6	4	Empty boats	...	...	...	...	...	...	...	...	...	...	...	...	...		...
45	Oil and oils	3,013	1,231	10,350	...	30 3 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
47	Paddy and rice	3,871	6,543	9,125	...	45 12 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
60	Pice-goods	630	42,057	8,850	...	17 0 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
48	Thread	1,993	71,112	9,150	...	11 0 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
17	Garden produce	1,198	5,731	3,150	...	37 5 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
18	Pottery	276	2,875	2,875	...	5 2 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
33	Salt	4,642	18,707	10,225	...	43 12 6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
27	Silk and indigo	1,513	1,05,870	6,125	...	83 0 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
2	Tute	155	425	450	...	0 15 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
4	Straw	371	123	1,375	...	2 8 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
33	Tobacco	3,175	20,375	8,950	...	108 0 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
2	Tiles	1,500	800	2,200	...	98 4 5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
8	Sand	940	57	2,125	...	363 9 0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
1	Brooks	111	212	150	...	9 5 10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
6	Rafts of timber	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		...
200	Empty boats	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
706	Passengers	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Ditto	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Miscellaneous revenue	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20	Police boats	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1,888	Total	53,128	4,50,477	1,52,450	5,451	1,52,450	1,888	1,888	1,888	4,50,477	1,52,450	5,451	1,52,450	1,888	1,888	1,888	1,888	4,50,477	1,52,450	5,451	1,52,450	1,888	

Orange shown above is that of the boats and not of the cargo.

The 10th February 1873.

F. T. HAIG, Lieut.-Colonel, R. E.,
Off. Joint-Secretary to the Government of Bengal
in the P. W. Dept., Irrigation Branch.

Weekly Return of Traffic Receipts on Indian Railways.

EASTERN BENGAL RAILWAY.

Approximate Return of Traffic for week ended 22nd February 1873, on 156½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	34,917	36,015 12 3	3,356 8 11	140,241 15½	25,405 14 6	2,328 17 6	6,685 6 5
Or per mile of railway	223	233 15 6	21 8 11	896 0	162 5 4	14 17 7	36 6 6
For previous 7 weeks of half-year	212,253	1,88,925 15 3	17,318 4 2	776,795 28½	1,06,513 3 6	15,263 14 1	32,581 18 3
Total for 8 weeks	247,170	2,25,541 11 6	20,674 13 1	917,037 4	1,01,919 2 0	17,592 11 7	38,267 4 8
COMPARISON.							
Total for corresponding week of previous year	41,190	23,004 1 7	2,191 4 2	208,965 25	42,038 7 7	3,907 12 3	6,098 16 5
Per mile of railway corresponding week of previous year	263	152 11 10	14 0 0	1,335 0	272 6 2	24 19 5	38 19 5
Total to corresponding date of previous year	259,863½	1,07,190 0 7	15,326 11 7	931,851 36	1,89,828 8 3	7,400 19 0	32,727 10 7

NALHATI STATE RAILWAY.

Approximate Return of Traffic for week ended 1st March 1873, on 27½ miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	2,525½	1,841 0 0	184 2 0	6,012 0	618 0 0	61 16 0	245 18 0
Or per mile of railway	93	67 8 0	6 15 0	221 0	22 8 0	2 5 0	9 0 0
For previous 8 weeks of half-year...	12,243½	8,871 0 0	847 2 0	45,997 0	3,418 0 0	381 16 0	1,268 18 0
Total for 9 weeks	14,769	10,712 0 0	1,071 4 0	52,009 0	4,436 0 0	443 12 0	1,614 16 0
COMPARISON.							
Total for corresponding week of previous year	.....	.....	.....	.....	.....	.....	.....
Per mile of railway corresponding week of previous year	.....	.....	.....	.....	.....	.....	.....
Total to corresponding date of previous year	.....	.....	.....	.....	.....	.....	.....

SOUTH-EASTERN STATE RAILWAY.

Approximate Return of Traffic for week ended 1st March 1873, on 28 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	9,123	1,309 0 0	136 18 0	17,004 0	664 0 0	66 8 0	263 6 0
Or per mile of railway	326	49 0 0	4 18 0	629 0	24 0 0	2 8 0	7 6 0
For previous 8 weeks of half-year	68,740	10,030 0 0	1,003 0 0	124,063 0	4,014 0 0	401 8 0	1,404 8 0
Total for 9 weeks	77,872	11,339 0 0	1,139 18 0	141,667 0	4,678 0 0	407 16 0	1,607 14 0
COMPARISON.							
Total for corresponding week of previous year	8,154	1,232 10 9	123 5 4	16,556 0	728 0 0	72 16 0	196 1 4
Per mile of railway corresponding week of previous year	291	44 0 4	4 8 1	591 11	26 0 0	2 12 0	7 0 1
Total to corresponding date of previous year	75,251½	10,637 2 9	1,063 14 4	145,140 0	4,433 15 9	443 12 0	1,507 6 4

EAST INDIAN RAILWAY—MAIN LINE.

Approximate Return of Traffic for week ended 1st March 1873, on 1,280 miles open.

		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	126,312	1,81,518 4 4	16,914 3 6	785,332 10	3,86,830 10 6	33,459 9 6	52,375 18 6
Or per mile of railway	815,270	12,57,046 14 0	13,134 3 3	5,967,923 0	3,002,411 1	27 14 1	40 18 4
For previous 8 weeks of half-year...	839,612	11,41,565 2 10	132,143 9 6	6,653,255 10	33,93,822 3 9	311,100 7 5	443,243 16 11
Total for 9 weeks	1,684,884	23,98,611 6 14	26,047 13 2	12,621,178 10	6,866,233 4 0	622,207 12 0	886,487 14 7
COMPARISON.							
Total for corresponding week of previous year	113,734	1,70,327 3 2	15,613 6 6	733,026 0	4,11,885 2 6	37,757 1 2	53,370 7 5
Per mile of railway corresponding week of previous year	.....	133 1 1	12 4 0	572 6 0	321 12 8	29 9 11	41 13 11
Total to corresponding date of previous year	925,019	11,22,693 2 4	130,406 5 9	6,72,383 30	41,49,154 13 0	380,359 8 10	610,744 9 7

EAST INDIAN RAILWAY—JUBBULPORE LINE.

Approximate Return of Traffic for week ended 1st March 1873, on 223½ miles open.

	COACHING TRAFFIC.			MERCHANDISE AND MINERAL TRAFFIC.			Total receipts.
	Number of passengers.	Coaching receipts.		Weight carried.	Receipts.		
		Rs. A. P.	£ s. d.	Mds. Srs.	Rs. A. P.	£ s. d.	£ s. d.
Total traffic for the week	5,879	21,230 4 0	1,946 2 1	68,562 10	10,208 2 0	1,760 15 0	3,706 17 1
Or per mile of railway ... ..	.....	91 15 10	8 14 2	.....	85 15 1	7 17 7	16 11 9
For previous 8 weeks of half-year ..	89,851	1,27,125 0 8	11,033 2 7	5,31,314 20	1,67,949 8 9	15,395 7 6	27,048 10 1
Total for 9 weeks	44,730	1,48,355 4 8	13,590 4 8	599,876 30	1,87,157 11 0	17,156 2 6	30,755 7 2
COMPARISON.							
Total for corresponding week of previous year	5,224	20,051 7 8	2,388 1 0	62,270 30	17,616 2 6	1,614 16 3	4,002 17 3
Per mile of railway corresponding week of previous year ... ..	.....	116 13 2	10 14 2	.....	78 15 11	7 4 10	17 19 0
Total to corresponding date of previous year	47,242	1,68,402 5 9	14,978 10 11	652,374 30	1,71,205 14 0	15,702 2 5	30,680 13 4

